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0000039, 2007, Incoming

CHAPTER 1

LEGAL, FINANCIAL, COMPLIANCE AND RELATED INFORMATION

M&RP

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CHAPTER 1
LEGAL, FINANCIAL, COMPLIANCE AND RELATED INFORMATION

110 MINIMUM REQUIREMENTS FOR LEGAL, FINANCIAL, COMPLIANCE AND RELATED INFORMATION

111 Introduction

For information pertaining to this section(s) refer to General Chapter 1 binder for Canyon Fuel Company, LLC prepared for the Dugout Canyon Mine, Soldier Canyon Mine and Banning Loadout operations.

112 Identification of Interests

112.100 Business Entity

The Dugout underground coal mining operation is located in Carbon County, Utah. The surface facilities for the Dugout Canyon Mine are within Section 23, Township 13 South, Range 12 East, SLBM approximately 11 miles northeast of Wellington, Utah.

For addition information refer to General Chapter 1 binder for Canyon Fuel Company, LLC Dugout Canyon Mine, Soldier Canyon Mine and Banning Loadout operations.

112.200 Applicant and Operator

For information pertaining to this section refer to General Chapter 1 binder for Canyon Fuel Company, LLC prepared for Dugout Canyon Mine, Soldier Canyon Mine and Banning Loadout operations.

112.300 Officers of the Applicant

For information pertaining to this section refer to General Chapter 1 binder for Canyon Fuel Company, LLC prepared for Dugout Canyon Mine, Soldier Canyon Mine and Banning Loadout operations.

112.400 Coal Mining and Reclamation Operation Owned or Controlled

The following list describes all permits held by Canyon Fuel Company, LLC, all pending applications for permits, and any permit recognized as necessary in the future for which no application has been filed. Identification numbers of applications or permits are contained in the following list. Many of the agencies listed, however, have review responsibility only and may not have submitted a numbered permit.

<u>Permit</u>	<u>Issuing Authority</u>	<u>Approval Status/ Identification No.</u>
Mining and Reclamation Permit C/007/039	State of Utah Department of Natural Resources Division of Oil, Gas and Mining Department of Interior U.S. Geological Survey and Office of Surface Mining Department of Agriculture U.S. Forest Service Manti La Sal National Forest	Approved
U.P.D.E.S. Permit UTG-040020/UT0025593	Environmental Protection Agency and Utah D.E.Q.	Approved
Business License	Carbon County	Approved
Mine Health and Safety Permits 42-01890 and 42-01888, 1211-UT-09-01890-01	Mine Safety and Health Administration - Utah	Approved

Radio Permits	Federal Communications Commission	Approved
Certificate of Insurance and Authorization to do Business in State	State Industrial Development Commission	Approved
Road Agreement	Carbon County	Approved
Air Quality Approval Order	State of Utah Utah Air Conservation Committee Department of Health Division of Environmental Health	Approved
Stream Channel Alteration Permit	State Engineer	Approved

The Canyon Coal Company, LLC mining permits and operations are:

SUFCO Mine	C/041/002
Skyline Mine	C/007/005
Soldier Canyon Mine	C/007/018
Banning Loadout	C/007/034
Dugout Canyon Mine	C/007/039

The issuing authority for the Canyon Fuel Company permits is the UDOGM.

Operations held by subsidiary companies of Arch Coal, Inc. and corporate structure are presented on Figure 1-1 in the General Chapter 1 for Canyon Fuel Company, LLC. Facility names, mailing addresses and permit numbers for these operations are provided in either Table 1-1 and/or Table 1-2. For additional information refer to the General Chapter 1 binder for Canyon Fuel Company, LLC prepared for the Dugout Canyon Mine, Soldier Canyon Mine and Banning Loadout operations.

112.500 Legal or Equitable Owner of the Surface and Mineral Properties

The legal and equitable owners of the surface and mineral properties to be affected by this mining operation during the duration of the permit period are the State of Utah, Bureau of Land Management and Canyon Fuel Company, LLC. Refer to Refuse Pile Amendment for additional ownership information.

Canyon Fuel Company, LLC
6955 South Union Park Center
Suite 540
Salt Lake City, UT 84047
Telephone: (801)569-4700

Milton & Ardith Thayne Trust
Sunnyside Star Route
Price, Utah 84501

State of Utah
School and Institutional
Trust Lands Administration
675 East 500 South
Salt Lake City, Utah 84102-2818

George & Alice Conover Etal
2701 Georgia Way
Sandy, Utah 84092

United States of America
Department of Interior
Bureau of Land Management
Price Coal Office
125 South 600 West
Price, Utah 84501

Gil L. Conover
450 So. State
Ferron, Utah 84523

No area within the lands to be affected by surface operations and facilities or within the area of coal to be mined is under a real estate contract.

Coal mining and reclamation operations are listed on Table 1-1 and the corporate structures is presented on Figure 1-1 in the General Chapter 1 binder.

112.600 Owners of Record of Property Contiguous to Proposed Permit Area

Owners of record for surface and mineral properties contiguous to the proposed permit area are shown on Plate 1-1 and 1-2, with the names and addresses listed below.

United States of America
Department of Interior
Bureau of Land Management
Price Coal Office
125 South 600 West
Price, Utah 84501

Gil L. Conover
450 So. State
Ferron, Utah 84523

State of Utah
School and Institutional Trust Lands Admin.
675 East 500 South
Salt Lake City, Utah 84102-2818

J. George Conover
275 West Main
Ferron, Utah 84523

KFJ Ranch Partnership
C/O Kerwin Jensen
Cleveland, Utah 84518

George & Alice Conover Etal
2701 Georgia Way
Sandy, Utah 84092

Milton & Ardith Thayne Trust
Sunnyside Star Route
Price, Utah 84501

Surface ownership along the county road is shown on Plate 1-3. In addition refer to the Refuse Pile Amendment for additional information.

112.700 MSHA Numbers

The Dugout Canyon Mine MSHA numbers are:

MSHA No. 42-01890 Rock Canyon seam (west side of canyon)

MSHA No. 42-01888 Gilson seam (west side of canyon)

MSHA No. 1211-UT-09-01890-01 Dugout Canyon Mine Refuse Pile

112.800 Interest in Contiguous Lands

A State Institutional Trust Lands coal tract is contiguous to the east of the Dugout Canyon Mine permit boundary. Upon approval by UDOGM, Canyon Fuel Company, LLC intends to begin mining the coal reserves in this lease during the current term of this permit application.

112.900 Certification of Submitted Information

Canyon Fuel Company, LLC hereby attests that the information contained in this permit document is true and correct to the best of their knowledge.

113 Violation Information

For violation information refer to Table 1-2 in the General Chapter 1 binder for Canyon Fuel Company, LLC prepared for the Dugout Canyon Mine, Soldier Canyon Mine and Banning Loadout operations.

114 Right-of-Entry Information

The right to enter the leaseholds conveyed by the State coal leases is conferred to the lessee by the Mineral Leasing Act of 1920 and the leases themselves. Copies of State coal leases ML-42648 and ML-42649, and Federal Lease U07064-027821 which grant CFC the right to enter and conduct underground mining operations, are presented in Appendix 1-1.

The legal description of the CFC leases is:

State Lease ML-42648 - (3640 acres) - Approved

T. 13 S., R. 12 E., SLBM, Utah

Section 8: E1/2

Section 10: S1/2

Section 11: S1/2

Sections 14 and 15: All

Section 17: NE1/4; E1/2SW1/4; SE1/4

Section 20: E1/2NW1/4; SW1/4NW1/4; N1/2NE1/4

Section 21: N1/2NW1/4; NE1/4

Section 22: N1/2; N1/2S1/2

Section 23: W1/2NW1/4

State Lease ML-42649 - (2212 acres) - Approved

T. 13 S., R. 12 E., SLBM, Utah

Section 3: Lots 1, 2, 3, 4, S1/2 (all)

Section 4: Lots 1, 2, 3, 4, S1/2 (all)

Section 5: Lots 1, 2, SE1/4

Section 9: All

Section 10: N1/2

Section 11: N1/2

Federal Coal Lease U-07064-027821 - (2,456.14 acres) - Approved 1 January 1957, Expanded 2007

T. 13 S., R. 12 E., SLBM, Utah

Section 13: S1/2

Section 23: E1/2E1/2, W1/2SE1/4, NE1/4SW1/4

Section 24: All

Section 25: N1/2N1/2

Section 26: N1/2NE1/4

T. 13 S., R. 13 E., SLBM, Utah

Section 18: Lots 3, 4, E1/2SW1/4; SE1/4

Section 19: Lots 1-4, E1/2W1/2, NE1/4, NW1/4SE1/4

Section 21: NW1/4NW1/4

Section 30: Lot 1

Federal BLM Right-of-Way UTU-76601 - (10 acres) - Sept. 1998

T. 13S., R. 12 E., SLBM, Utah

Section 23: NE1/4NW1/4NW1/4SW1/4, N1/2NE1/4NW1/4SW1/4,
SE1/4NW1/4NW1/4SW1/4

Fee land owned by CFC as described below: (800 acres)

T. 13 S., R. 12 E., SLBM, Utah

Section 16: All

Section 23: E1/2NW1/4; W1/2NE1/4

BLM Rt-of-Way UTU-77985 - (57.5 acres)

T13 S., R12E., SLBM, Utah

Section: 22: NE1/4SW1/4SW1/4SE1/4, S1/2SW1/4SW1/4SE1/4,
N1/2SE1/4SW1/4SE1/4, SE1/4NE1/4SW1/4SE1/4,
S1/2NW1/4SE1/4SE1/4, SW1/4NE1/4SE1/4SE1/4,
N1/2NE1/4SE1/4SE1/4

Section 23: NW1/4SW1/4NW1/4SW1/4, S1/2NW1/4NW1/4SW1/4,
NE1/4NW1/4NW1/4SW1/4, N1/2NE1/4NW1/4SW1/4

Section 27: NE1/4SE1/4NE1/4NW1/4, S1/2SE1/4NE1/4NW1/4,
SE1/4NE1/4NE1/4NW 1/4, W1/2 NW1/4NW1/4NE1/4

BLM Parcel (2.5 acres)

T13 S., R12E., SLBM, Utah

Section: 23: NW1/4NW1/4NW1/4SW1/4

State Lease ML-48435-OBA - (2,560 acres)

T13 S., R13 E., SLBM, Utah

Section 17: W1/2W1/2SW1/4, W1/2E1/2W1/2SW1/4

Section 19: NE1/4SE1/4, S1/2SE1/4

Section 20: W1/2W1/2W1/2, W1/2E1/2W1/2W1/2

T13 S., R13 E., SLBM, Utah (Added to Permit Area in 2005, approximately 2,360 acres)

Section 17: E1/2SW1/4, SW1/4SE1/4, E1/2E1/2W1/2SW1/4

Section 20: E1/2W1/2, E1/2, E1/2E1/2W1/2W1/2

Section 21: SW1/4NW1/4, SW1/4

Section 28: NW1/4, N1/2SW1/4, SW1/4SW1/4

Section 29: All

Section 30: E1/2, E1/2W1/2

Waste Rock Storage Facility

T. 14 S., R. 12 E., SLBM, Utah (Approximately 26.8 acres)

Section 18: Portions of NE1/4, SW1/4 and SE1/4 of the NE1/4

All of Lease ML-42648, except the E1/2 of Section 8 and the NE1/4 of Section 17, is included within the Dugout Canyon Mine permit boundary. However, only the S1/2 SE1/4 of Section 9 from Lease ML-42649 is within the permit boundary. The ten acres described in UTU-76601 are also described in UTU-77985. The U.S. Department of Interior, Bureau of Land Management (BLM) right-of-way application UTU-76601 is included in Appendix 1-3.

The disturbed area encompasses 20.80 acres (Mine Facility area, including Gilson well pad and small substation), 24.85 acres (G-2, G-3, G-4, G-5, G-6, G-7, G-9, G-10, G-11, G-12, G-13, G-14, G-15, G-16 and G-17 Degas Well), 1.8 acres (Leach field/pipeline area), 2.7 acres (Pace Canyon Fan Facility) and 26.8 acres (Refuse Pile area) totaling approximately 77 acres. That acreage includes a pre- and post mining road with an area of 1.6 acres and 2.03 acres of undisturbed land within the mine facilities disturbed area and 11.2 acres within the refuse pile disturbed area.

The permit boundary encompasses approximately 9,511 acres which includes the following surface ownership and acreage: 10 acres in the BLM right-of-way, approximately 567 acres of other federal lands, 920 acres of state lands, and fee acreage of approximately 8,014 acres (Plate 1-1 and RA Plate 1-1).

Coal ownership acreage within the permit area includes approximately 2,844 acres of federal coal, approximately 5840 acres of state coal, and 827 acres of fee coal (Plate 1-2 and RA1-1B). Approximately 745 acres which include the surface subsidence area, refuse pile and leach field

areas will not be mined although their acreage is included in the surface and coal ownership acreage totals.

A legal description of the permit boundary includes:

T. 13 S., R. 12 E., SLBM, Utah

- Section 9: S1/2SE1/4
- Section 10: S1/2
- Section 11: S1/2
- Section 13: All except N1/2N1/2
- Section 14: All
- Section 15: All
- Section 16: All
- Section 17: E1/2SW1/4; SE1/4
- Section 20: E1/2NW1/4; SW1/4NW1/4; N1/2NE1/4
- Section 21: N1/2NW1/4; NE1/4
- Section 22: N1/2; N1/2S1/2; Portion of N1/2NE1/4SE1/4SE1/4;
Portion of SW1/4NE1/4SE1/4SE1/4;
Portion of the S1/2NW1/4SE1/4SE1/4;
Portion of SW1/4NE1/4SW1/4SE1/4;
Portion of N1/2SE1/4SW1/4SE1/4;
Portion of NE1/4SW1/4SW1/4SE1/4;
Portion of S1/2SW1/4SW1/4SE1/4
- Section 23: NW1/4; NE1/4; SE1/4; NE1/4SW1/4; NW1/4NW1/4SW1/4;
S1/2NE1/4NW1/4SW1/4; NW1/4SW1/4NW1/4SW1/4
- Section 24: All
- Section 25: N1/2N1/2
- Section 26: N1/2NE1/4
- Section 27: Portion of W1/2NW1/4NW1/4NE1/4
Portion of SW1/4NE1/4NE1/4NW1/4
Portion of E1/2SW1/4NE1/4NW1/4
Portion of SW1/4SW1/4NE1/4NW1/4

T. 13 S., R. 13 E., SLBM, Utah

Section 17	SW1/4; SW1/4NW1/4; SW1/4SE1/4
Section 18	All except N1/2N1/2
Section 19	All
Section 20	All
Section 21	SW1/4; SW1/4NW1/4; NW1/4NW1/4
Section 28	NW1/4; N1/2SW1/4; SW1/4SW1/4
Section 29	All
Section 30	NW1/4NW1/4; E1/2; E1/2W1/2

T. 14 S., R. 12 E., SLBM, Utah

Section 18	Portion N1/2NE1/4
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Topsoil is being stored in T14S, R12E, Section 8, a storage area permitted to Soldier Canyon Mine. See Chapter 2 for additional details concerning the topsoil storage.

Acreage has been added to the permit area which is in excess of the Federal lease acreage to act as a subsidence buffer zone. This acreage has been added in T13S, R12E Section 13 and T13S, R13E Sections 17 and 18.

The refuse pile is located on property owned by Canyon Fuel Company, LLC. The property is located approximately 6.5 miles southwest of the Dugout Canyon Mine in portions of the NE1/4, SW 1/4 and SE 1/4 of the NE 1/4, in a portion of the NW 1/4 of the SE1/4, and in the NW1/4 of the NE 1/4 of Section 18, Township 14 South, Range 12 East, Salt Lake Base Meridian.

BLM Right-of-Way UTU-77985 grants the right-of-entry for the leach field and associated pipeline. Refer to the right-of-way description above.

115 Status of Unsuitability Claims

To the best knowledge of Canyon Fuel Company, LLC, no portion of the area to be permitted is designated, or under study for being designated, unsuitable for mining.

CFC does not propose to conduct coal mining or reclamation operations within 300 feet of any occupied dwelling. A description of operations to be conducted within 100 feet of a public road is provided in Chapter 5 of this M&RP, together with a discussion of plans to protect the interests of the public.

116 Permit Term

The anticipated mining progression during operation of the Dugout Canyon Mine is outlined on Plate 5-7. Rates of production for the permit term are presented in Section 523. Reclamation operations are discussed in Chapters 2, 3, 5, 7, and 8.

117 Insurance, Proof of Publication, and Facilities and Structures Used in Common

Certificates of insurance issued to Canyon Fuel Company, LLC are located in General Chapter 1 binder for Canyon Fuel Company, LLC Dugout Canyon Mine, Soldier Canyon Mine and Banning Loadout operations.

The newspaper advertisement and the verification of the advertisement appearing in the appropriate newspapers are included in Appendix 1-2.

118 Filing Fee

The permit application was accompanied by a \$5.00 filing fee. UDOGM retains a record of filing fee payments in their office in Salt Lake City, Utah.

120 PERMIT APPLICATION FORMAT AND CONTENTS

This permit application will comply with R645-301-120.

130 REPORTING OF TECHNICAL DATA

All technical data submitted in the permit application will be accompanied by the name or organization responsible for the collection and analysis of data, dates of collection and descriptions of methodology used. Technical analyses will be planned by or under the direction of a qualified professional in the subject to be analyzed.

140 MAPS AND PLANS

The maps and plans in the Mining and Reclamation Plan will correspond with the requirements in R645-301-140.

150 COMPLETENESS

CFC believes the information in this permit application to be complete and correct.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
March 16, 2007

APPENDIX 1-1

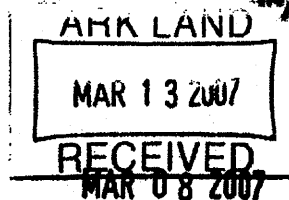
Coal Lease Documents



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155
<http://www.blm.gov>



IN REPLY REFER TO:
3432
UTU-07064-027821
(UT-924)

CERTIFIED MAIL- Return Receipt Requested

Canyon Fuel Company LLC
c/o Ark Land Company
Attn: Doug Downing
Vice President - Land
City Place One, Suite 300
St. Louis, MO 63141

DECISION

Coal Lease
UTU-07064-027821

Evidence Required

An application for a modification of coal lease UTU-07064-027821 was filed in this office on September 7, 2006. The proposed lease modification includes the following described lands in Carbon County, Utah:

T. 13 S., R. 13 E., SLM, Utah
Sec. 17, S $\frac{1}{2}$ N $\frac{1}{2}$, N $\frac{1}{2}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$;
Sec. 18, lot 2, S $\frac{1}{2}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$;
Sec. 21, NW $\frac{1}{4}$ NW $\frac{1}{4}$.

Containing 487.57 acres

It has been determined that the proposed modification meets the requirements of the regulations under 43 CFR 3432.3 and that it would serve the interests of the United States to modify this lease under Sec. 3 of the Mineral Leasing Act of February 25, 1920, as amended. Accordingly prior to the execution of the modified lease, the enclosed lease forms and stipulations must be accepted, signed, dated and returned to this office accompanied by the following:

1. Rental in the amount of \$1,464.00. The additional yearly rental on the modified area at a rate of \$3.00 per acre is \$1,464.00. Upon execution of the modified lease, a refund of excess rental will be authorized if necessary. Rental in the amount of \$3.00 per acre, or a total, including the modified area, of \$8,712.00, will be due on the anniversary date hereafter. Please submit evidence to this office that the additional rental has been paid.
2. A signed statement that the personal lease bond covering this lease will cover the additional modification acreage.

A personal lease bond in the amount of \$2,076,000 is on file and has been determined to be adequate coverage to include the modification of coal lease UTU-07064-027821.

A period of thirty days from the receipt of this decision is allowed in which to accept the modified lease forms and to submit the evidence required. If no action is taken within the time allowed, the case file will be closed as to the application for modification.

During the compliance period there is no right of appeal to the Interior Board of Land Appeals and an appeal filed within the compliance period is subject to dismissal as being premature. The 30-day appeal period commences upon expiration of the 30-day compliance period.

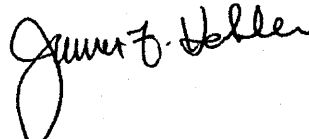
This decision may be appealed to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations contained in 43 CFR, Part 4, and the enclosed Form 1842.1. If an appeal is taken, your notice of appeal must be filed in this office (at the above address) within 30 days from receipt of this decision. The appellant has the burden of showing that the decision appealed from is in error.

If you wish to file a petition (pursuant to regulation 43 CFR 4.21)(58 FR 4939, January 19, 1993) (request) for a stay (suspension) of the effectiveness of this decision during the time that your appeal is being reviewed by the Board, the petition for a stay must accompany your notice of appeal. A petition for a stay is required to show sufficient justification based on the standards listed below. Copies of the notice of appeal and petition for a stay must also be submitted to each party named in this decision and to the Interior Board of Land Appeals and to the appropriate Office of the Solicitor (see 43 CFR 4.413) at the same time the original documents are filed in this office. If you request a stay, you have the burden of proof to demonstrate that a stay should be granted.

Standards for Obtaining a Stay

Except as otherwise provided by law or other pertinent regulation, a petition for a stay of a decision pending appeal shall show sufficient justification based on the following standards.

- (1) The relative harm to the parties if the stay is granted or denied,
- (2) The likelihood of the appellant's success on the merits,
- (3) The likelihood of immediate and irreparable harm if the stay is not granted, and
- (4) Whether the public interest favors granting the stay.



James F. Kohler
Chief, Branch of
Solid Minerals

Enclosures:

Form 1842.1
Modified Lease (9 pp.)

cc: Price Coal Office

MMS, MRM, Solid Minerals Staff, Attn: Patrick Mulcahy, MS390B2, Box 25165, Denver,
CO 80225-0165

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Serial No. UTU-07064-027821

MODIFIED COAL LEASE

Date of Lease January 1, 1957

PART I.

THIS MODIFIED COAL LEASE is entered into on March 12, 2007, by and between the **UNITED STATES OF AMERICA**, hereinafter called the Lessor, through the Bureau of Land Management, and
Canyon Fuel Company LLC
c/o Ark Land Company
City Place One, Suite 300
St. Louis, MO 63141

hereinafter called Lessee.

This modified lease shall retain the effective date of January 1, 1957, of the original **COAL LEASE UTU- 07064-027821**, and is effective for a period of 10 years from the date of the last lease readjustment, dated January 1, 2007 and for so long thereafter as coal is produced in commercial quantities from the leased lands, subject to readjustment of lease terms at the end of each 10 year lease period thereafter.

Sec. 1. This lease is issued pursuant and subject to the terms and provisions of the: (NOTE: Check the appropriate Act or Acts.)

XX Mineral Lands Leasing Act of 1920, as amended, 41 Stat. 437, 30 U.S.C. 181-287, hereinafter referred to as the Act;

 Mineral Leasing Act for Acquired Lands of 1947, 61 Stat. 913, 30 U.S.C. 351-359;

and to the regulations and formal orders of the Secretary of the Interior which are now or hereafter in force, when not inconsistent with the express and specific provisions herein.

Sec. 2. Lessee as the holder of Coal Lease UTU- 07064-027821, issued effective January 1, 1957, was granted the exclusive right and privilege to drill for, mine, extract, remove or otherwise process and dispose of the coal deposits in, upon, or under the lands described below as Tract 1.

The Lessor in consideration of fair market value, rents and royalties to be paid, and the conditions and covenants to be observed as herein set forth, hereby grants and leases to Lessee the exclusive right and privilege to drill for, mine, extract, remove, or otherwise process and dispose of the coal deposits in, upon, or under the lands described below as Tract 2.

Tract 1:

T. 13 S., R. 12 E., SLM, Utah

Sec. 13, S $\frac{1}{2}$,

Sec. 23, E $\frac{1}{2}$ E $\frac{1}{2}$, NE $\frac{1}{4}$ SW $\frac{1}{4}$, W $\frac{1}{2}$ SW $\frac{1}{4}$;

Sec. 24, all;

Sec. 25, N $\frac{1}{2}$ N $\frac{1}{2}$;

Sec. 26, N $\frac{1}{2}$ NE $\frac{1}{4}$.

T. 13 S. R. 13 E., SLM, Utah

Sec. 18, lots 3 and 4, E $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$;

Sec. 19, lots 1-4, E $\frac{1}{2}$ W $\frac{1}{2}$, NE $\frac{1}{4}$, NW $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 30, lot 1.

Tract 2:

T. 13 S., R. 13 E., SLM, Utah

Sec. 17, S $\frac{1}{2}$ N $\frac{1}{2}$, N $\frac{1}{2}$ SE $\frac{1}{4}$, SE $\frac{1}{4}$ SE $\frac{1}{4}$;

Sec. 18, lot 2, S $\frac{1}{2}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$;

Sec. 21, NW $\frac{1}{4}$ NW $\frac{1}{4}$.

containing 2,903.71 acres, more or less, together with the right to construct such works, buildings, plants,

structures, equipment and appliances and the right to use such on-lease rights-of-way which may be necessary and convenient in the exercise of the rights and privileges granted, subject to the conditions herein provided.

Part II. TERMS AND CONDITIONS

Sec. 1.(a) RENTAL RATE - Lessee shall pay Lessor rental annually and in advance for each acre or fraction thereof during the continuance of the lease at the rate of \$3.00 per acre for each lease year.

(b) RENTAL CREDITS - Rental shall not be credited against either production or advance royalties for any year.

Sec. 2.(a) PRODUCTION ROYALTIES - The royalty shall be 8 percent of the value of the coal as set forth in the regulations. Royalties are due to Lessor the final day of the month succeeding the calendar month in which the royalty obligation accrues.

(b) ADVANCE ROYALTIES - Upon request by the Lessee, the authorized officer may accept, for a total of not more than 10 years, the payment of advance royalties in lieu of continued operation, consistent with the regulations. The advance royalty shall be based on a percent of the value of a minimum number of tons determined in the manner established by the advance royalty regulations in effect at the time the Lessee requests approval to pay advance royalties in lieu of continued operation.

Sec. 3. BONDS - Lessee shall maintain in the proper office a lease bond in the amount of \$2,076,000. The authorized officer may require an increase in this amount when additional coverage is determined appropriate.

Sec. 4. DILIGENCE - This lease achieved diligent development February 1, 2003, and is subject to the conditions of continued operation. Continued operation may be excused when operations under the lease are interrupted by strikes, the elements, or casualties not attributable to the Lessee. The Lessor, in the public interest, may suspend the condition of continued operation upon payment of advance royalties in accordance with the regulations in existence at the time of the suspension.

The Lessor reserves the power to assent to or order the suspension of the terms and conditions of this lease in accordance with, inter alia, Section 39 of the Mineral Leasing Act, 30 U.S.C. 209.

Sec. 5. LOGICAL MINING UNIT (LMU) - Either upon approval by the Lessor of the Lessee's application or at the direction of the Lessor, this lease shall become

an LMU or part of an LMU, subject to the provisions set forth in the regulations.

The stipulations established in an LMU approval in effect at the time of LMU approval or modification will supersede the relevant inconsistent terms of this lease so long as the lease remains committed to the LMU. If the LMU of which this lease is a part is dissolved, the lease shall then be subject to the lease terms which would have been applied if the lease had not been included in an LMU.

This lease was placed in the Soldier Creek LMU effective March 1, 1996.

Sec. 6. DOCUMENTS, EVIDENCE AND INSPECTION - At such times and in such form as Lessor may prescribe, Lessee shall furnish detailed statements showing the amounts and quality of all products removed and sold from the lease, the proceeds therefrom, and the amount used for production purposes or unavoidably lost.

Lessee shall keep open at all reasonable times for the inspection of any duly authorized officer of Lessor, the leased premises and all surface and underground improvements, works, machinery, ore stockpiles, equipment, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or under the leased lands.

Lessee shall allow Lessor access to and copying of documents reasonably necessary to verify Lessee compliance with terms and conditions of the lease.

While this lease remains in effect, information obtained under this section shall be closed to inspection by the public in accordance with the Freedom of Information Action (5 U.S.C. 552).

Sec. 7. DAMAGES TO PROPERTY AND CONDUCT OF OPERATIONS - Lessee shall comply at its own expense with all reasonable orders of the Secretary, respecting diligent operations, prevention of waste, and protection of other resources.

Lessee shall not conduct exploration operations, other than casual use, without an approved exploration plan. All exploration plans prior to the commencement of mining operations within an approved mining permit area shall be submitted to the authorized officer.

Lessee shall carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health, or property, and

prevention of waste, damage or degradation any land, air, water, cultural, biological, visual, and other resources, including mineral deposits and formations of mineral deposits not leased hereunder, and to other land uses or users. Lessee shall take measures deemed necessary by Lessor to accomplish the intent of this lease term. Such measures may include, but not limited to, modification to proposed siting or design of facilities, timing of operations, and specifications of interim and final reclamation procedures. Lessor reserves to itself the right to lease, sell, or otherwise dispose of the surface or other mineral deposits in the lands and the right to continue existing uses and to authorize future uses upon or in the leased lands, including issuing leases for mineral deposits not covered hereunder and approving easements or rights-of-way. Lessor shall condition such uses to prevent unnecessary or unreasonable interference with rights of Lessee as may be consistent with concepts of multiple use and multiple mineral development.

Sec. 8 PROTECTION OF DIVERSE INTERESTS, AND EQUAL OPPORTUNITY - Lessee shall: pay when due all taxes legally assessed and levied under the laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; restrict the workday to not more than 8 hours in any one day for underground workers, except in emergencies; and take measures necessary to protect the health and safety of the public. No person under the age of 16 years shall be employed in any mine below the surface. To the extent that laws of the State in which the lands are situated are more restrictive than the provisions in this paragraph, then the State laws apply.

Lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor. Neither Lessee nor Lessee's subcontractors shall maintain segregated facilities.

Sec. 9(a) TRANSFERS
(Check the appropriate space)

☒ This lease may be transferred in whole or in part to any person, association or corporation qualified to hold such lease interest.

☐ This lease may be transferred in whole or in part to another public body, or to a person who will mine the coal on behalf of, and for the use

of, the public body or to a person who for the limited purpose of creating a security interest in favor of a lender agrees to be obligated to mine the coal on behalf of the public body.

☐ This lease may only be transferred in whole or in part to another small business qualified under 13 CFR 121.

Transfers of record title, working or royalty interest must be approved in accordance with the regulations.

(b) **RELINQUISHMENTS** - The Lessee may relinquish in writing at any time all rights under this lease or any portion thereof as provided in the regulations. Upon Lessor's acceptance of the relinquishment, Lessee shall be relieved of all future obligations under the lease or the relinquished portion thereof, whichever is applicable.

Sec. 10. DELIVERY OF PREMISES, REMOVAL OF MACHINERY, EQUIPMENT, ETC. - At such times as all portions of this lease are returned to Lessor, Lessee shall deliver up to Lessor the land leased, underground timbering, and such other supports and structures necessary for the preservation of the mine workings on the leased premises or deposits and place all workings in condition for suspension or abandonment. Within 180 days thereof, Lessee shall remove from the premises all other structures, machinery, equipment, tools, and materials that it elects to or as required by the authorized officer. Any such structures, machinery, equipment, tools, and materials remaining on the leased lands beyond 180 days, or approved extension thereof, shall become the property of the Lessor, but Lessee shall either remove any or all such property or shall continue to be liable for the cost of removal and disposal in the amount actually incurred by the Lessor. If the surface is owned by third parties, Lessor shall waive the requirement for removal, provided the third parties do not object to such waiver. Lessee shall, prior to the termination of bond liability or at any other time when required and in accordance with all applicable laws and regulations, reclaim all lands the surface of which has been disturbed, dispose of all debris or solid waste, repair the offsite and onsite damage caused by Lessee's activity or activities incidental thereto, and reclaim access roads or trails.

Sec. 11. PROCEEDINGS IN CASE OF DEFAULT - If Lessee fails to comply with applicable laws, existing regulations, or the terms, conditions and stipulations of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation by the Lessor only by judicial proceedings. This provision shall not be construed to

prevent the exercise by Lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver shall not prevent later cancellation for the same default occurring at any other time.

Sec. 12. HEIRS AND SUCCESSORS - INTEREST - Each obligation of this lease shall extend to and be binding upon, and every benefit hereof shall inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 13. INDEMNIFICATION - Lessee shall indemnify and hold harmless the United States from any and all claims arising out of the Lessee's activities and operations under this lease.

Sec. 14. SPECIAL STATUTES - This lease is subject to the Federal Water Pollution Control Act (33 U.S.C. 1151 - 1175); the Clean Air Act (42 U.S.C. 1857 et seq.), and to all other applicable laws pertaining to exploration activities, mining operations and reclamation, including the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.)

Sec. 15. SPECIAL STIPULATIONS -

SEE ATTACHED STIPULATIONS

Ark Land Company
Company or Lessee Name

Wm. Scott Stewart
(Signature of Lessee)

V. P. Exploration
(Title)

3/14/07
(Date)

The United States of America

BY _____

James F. H. H. H.
(Signing Officer)

Chief, Branch of Solid Minerals
(Title)

March 16, 2007
(Date)

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**SPECIAL STIPULATIONS FOR UTU-07064-027821
MODIFIED COAL LEASE**

1. In accordance with Sec. 523(b) of the "Surface Mining Control and Reclamation Act of 1977," surface mining and reclamation operations conducted on this lease are to conform with the requirements of this act and are subject to compliance with Office of Surface Mining regulations, or as applicable the Utah program approved under the cooperative agreement in accordance with sec. 523(c). The United States Government does not warrant that the entire tract will be susceptible to mining.

2. Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the lessee may be required to conduct a cultural resource inventory and a paleontological appraisal of the areas to be disturbed. These studies shall be conducted by qualified professional cultural resource specialists or qualified paleontologists, as appropriate, and a report prepared itemizing the findings. A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified cultural or paleontological resources.

If cultural resources or paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the lessee prior to disturbance shall, immediately bring them to the attention of the Authorized Officer. Paleontological remains of significant scientific interest do not include leaves, ferns, or dinosaur tracks commonly encountered during underground mining operations.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the lessee.

3. If there is reason to believe that Threatened or Endangered (T&E) species of plants or animals, or migratory bird species of high Federal interest occur in the area, the Lessee shall be required to conduct an intensive field inventory of the area to be disturbed and/or impacted. The inventory shall be conducted by a qualified specialist and a report of findings will be prepared. A plan will be prepared making recommendations for the protection of these species or action necessary to mitigate the disturbance.

The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the lessee.

4. Before undertaking activities that may disturb the surface of previously undisturbed leased lands, the lessee may be required to conduct a paleontological appraisal of the areas to be disturbed. The appraisal shall be conducted by a qualified paleontologist and a report prepared itemizing the findings.

A plan will then be submitted making recommendations for the protection of, or measures to be taken to mitigate impacts for identified paleontological resources.

If paleontological remains (fossils) of significant scientific interest are discovered during operations under this lease, the lessee shall immediately bring them to the attention of the authorized officer who shall

evaluate, or have evaluated such discoveries and, within 5 working days, shall notify the lessee what action shall be taken with respect to such discoveries. Paleontological remains of significant scientific interest do not include leaves, ferns, or dinosaur tracts commonly encountered during underground mining.

The cost of conducting the inventory, preparing reports, and carrying out necessary protective mitigating measure shall be borne by the lessee. The cost of salvage of paleontological remains (fossils) shall be borne by the United States.

5. The Lessee shall be required to perform a study to secure adequate baseline data to quantify the existing surface resources on and adjacent to the lease area. Existing data may be used if such data are adequate for the intended purposes. The study shall be adequate to locate, quantify, and demonstrate the interrelationship of the geology, topography, surface and ground water hydrology, vegetation and wildlife. Baseline data will be established so that future programs of observation can be incorporated at regular intervals for comparison.
6. Powerlines used in conjunction with the mining of coal from this lease shall be constructed so as to provide adequate protection for raptors and other large birds. When feasible, powerlines will be located at least 100 yards from public roads.
7. The lessee shall provide for the suppression and control of fugitive dust on haul roads and at coal-handling and storage facilities on the lease area. The migration of road surfacing and subsurface materials into streams and water courses shall be prevented.
8. The lessee shall be required to establish a monitoring system to locate, measure, and quantify the progressive and final effects of underground mining activities on the topographic surface, underground and surface hydrology and vegetation. The monitoring system shall utilize techniques which will provide a continuing record of change over time and an analytical method for location and measurement of a number of points over the lease area. The monitoring shall incorporate and be an extension of the baseline data. The monitoring system shall be adequate to locate and quantify, and demonstrate the inter-relationship of the geology, topography, surface hydrology, vegetation and wildlife.
9. Except at locations specifically approved by the Authorized Officer with concurrence of the surface management agency, underground mining operations shall be conducted in such a manner so as to prevent surface subsidence that would: (1) cause the creation of hazardous conditions such as potential escarpment failure and landslides, (2) cause damage to existing surface structures, and (3) damage or alter the flow of perennial streams. The lessee shall provide specific measures for the protection of escarpments, and determine corrective measures to assure that hazardous conditions are not created.
10. In order to avoid surface disturbance on steep canyon slopes and to preclude the need for surface access, all surface breakouts for ventilation tunnels shall be constructed from inside the mine, except at specifically approved locations.
11. Support facilities, structures, equipment, and similar developments will be removed from the lease area within 2 years after the final termination of use of such facilities. This provision shall apply unless the requirement of Section 10 of the lease form is applicable. Disturbed areas and those areas previously occupied by such facilities will be stabilized and rehabilitated, drainages reestablished, and the areas returned to an authorized post mining land use.

12. The Lessee at the conclusion of the mining operation, or at other times as surface disturbance related to mining may occur, will replace all damaged, disturbed, or displaced corner monuments (section corners, quarter corners, etc.) their accessories and appendages (witness trees, bearing trees, etc.), or restore them to their original condition and location, or at other locations that meet the requirements of the rectangular surveying system. This work shall be conducted at the expense of the Lessee, by BLM to the standards and guidelines found in the Manual of Surveying Instructions, U.S. Department of Interior.

13. Notwithstanding the approval of a resource recovery and protection plan by the BLM, lessor reserves the right to seek damages against the operator/lessee in the event (i) the operator/lessee fails to achieve maximum economic recovery [as defined at 43 CFR §3480.0-5(21)] of the recoverable coal reserves or (ii) the operator/lessee is determined to have caused a wasting of recoverable coal reserves. Damages shall be measured on the basis of the royalty that would have been payable on the wasted or un-recovered coal.

The parties recognize that under an approved R2P2, conditions may require a modification by the operator/lessee of that plan. In the event a coal bed or portion thereof is not to be mined or is rendered unminable by the operation, the operator shall submit appropriate justification to obtain approval by the AO to leave such reserves unmined. Upon approval by the AO, such coal beds or portions thereof shall not be subject to damages as described above. Further, nothing in this section shall prevent the operator/lessee from exercising its right to relinquish all or a portion of the lease as authorized by statute and regulation.

In the event the AO determines that the R2P2 modification will not attain MER resulting from changed conditions, the AO will give proper notice to the operator/lessee as required under applicable regulations. The AO will order a new R2P2 modification if necessary, identifying additional reserves to be mined in order to attain MER. Upon a final administrative or judicial ruling upholding such an ordered modification, any reserves left un-mined (wasted) under that plan will be subject to damages as described in the first paragraph under this section.

Subject to the right to appeal hereinafter set forth, payment of the value of the royalty on such un-mined recoverable coal reserves shall become due and payable upon determination by the AO that the coal reserves have been rendered un-minable or at such time that the lessee has demonstrated an unwillingness to extract the coal.

The BLM may enforce this provision either by issuing a written decision requiring payment of the MMS demand for such royalties, or by issuing a notice of non-compliance. A decision or notice of non-compliance issued by the lessor that payment is due under this stipulation is appealable as allowed by law.

14. **WASTE CERTIFICATION:** The lessee shall provide upon abandonment and/or sealing off a mined area and prior to lease termination/relinquishment, certification to the lessor that, based upon a complete search of all the operator's records for the mine and upon their knowledge of past operations, there has been no **hazardous substances** per (40 CFR 302.4) or **used oil** as per Utah State Management Rule R-315-15, deposited within the lease, either on the surface or underground, or that all remedial action necessary has been taken to protect human health and the environment with respect to any such substances remaining on the property. The back-up documentation to be provided shall be described by the lessor prior to the first certification and shall include all documentation applicable to the Emergency Planning and Community Right-to-know Act (EPCRA, Public Law 99-499), Title III of the Superfund Amendments and Reauthorization Act of 1986 or equivalent.

15. **ABANDONMENT OF EQUIPMENT:** The lessee/operator is responsible for compliance with reporting regarding toxic and hazardous material and substances under Federal Law and all associated amendments and regulations for the handling such materials on the land surface and in underground mine workings.

The lessee/operator must remove mine equipment and materials not needed for continued operations, roof support and mine safety from underground workings prior to abandonment of mine sections. Exceptions can be approved by the Authorized Officer (BLM) in consultation with the surface management agency. Creation of a situation that would prevent removal of such material and by retreat or abandonment of mine sections

without prior authorization would be considered noncompliance with lease terms and conditions and subject to appropriate penalties under the lease.

16. **UNDERGROUND INSPECTION:** All safe and accessible areas shall be inspected prior to being sealed. The lessee shall notify the Authorized Officer in writing 30 days prior to the sealing of any areas in the mine and state the reason for closure. Prior to seals being put into place, the lessee shall inspect the area and document any equipment/machinery, hazardous substances, and used oil that is to be left underground.

The purpose of this inspection will be: (1) to provide documentation for compliance with 42 U.S.C. 9620 section 120(h) and State Management Rule R-315-15, and to assure that certification will be meaningful at the time of lease relinquishment, (2) to document the inspection with a mine map showing location of equipment/machinery (model, type of fluid, amount remaining, batteries etc.) that is proposed to be left underground. In addition, these items will be photographed at the lessee's expense and shall be submitted to the Authorized Officer as part of the certification. The abandonment of any equipment/machinery shall be on a case by case basis and shall not be accomplished unless the Authorized Officer has granted a written approval.

17. **GOB VENT BOREHOLES.** The Lessee shall submit a gob vent borehole plan for approval by the AO as part of an R2P2 for all gob vent boreholes. The plugging portion of the plan must meet 43 CFR 3484.1(a)(3) as a minimum. If variations to the approved plugging procedures are necessary, they shall also be approved by the AO in writing prior to implementation of the procedures.

18. **FAIR MARKET VALUE BONUS:** Due to the uncertainty of the amount of recoverable coal reserves in this modification, the lessee will pay the fair market value (FMV) bonus payment for the coal resources mined in the area of Federal coal lease modification (U07064-027821) at the rate of \$0.20 per ton for the actual tonnage mined. Payment of FMV at the specified rate and tonnage mined will be on the schedule required for payment of production royalties to the Minerals Management Service (MMS). The lessee will clearly indicate which portion of the payment is for royalty and what is for the lease bonus payment.

APPENDIX 1-4

Disturbed Area Legal Description

LEGAL DESCRIPTION OF BONDED AREA:

Waste Rock Storage Facility

T. 14 S., R. 12 E., SLBM, Utah (Approximately 26.8 acres)

Section 18: Portions of NW1/4NE1/4NE1/4
Portions of NE1/4NE1/4NE1/4
Portions of SW1/4NE1/4NE1/4
Portions of SE1/4NE1/4NE1/4
Portions of NW1/4SE1/4NE1/4

Leachfield and Pipeline

T. 13 S., R. 12 E., SLBM, Utah (Approximately 1.8 acres)

Section 22: Portion of SE1/4SE1/4NE1/4SE1/4
Portion of NE1/4SE1/4NE1/4SE1/4
Portion of N1/2NE1/4SE1/4SE1/4;
Portion of SW1/4NE1/4SE1/4SE1/4;
Portion of S1/2NW1/4SE1/4SE1/4;
Portion of SE1/4NE1/4SW1/4SE1/4;
Portion of N1/2SE1/4SW1/4SE1/4;
Portion of NE1/4SW1/4SW1/4SE1/4;
Portion of S1/2SW1/4SW1/4SE1/4
Section 23: Portion of SW 1/4NW1/4NW1/4SW1/4;
Portion of SE1/4NW1/4NW1/4SW1/4;
Portion of NW1/4SW1/4NW1/4SW1/4;
Section 27: Portion of W1/2NW1/4NW1/4NE1/4
Portion of SE1/4NE1/4NE1/4NW1/4
Portion of E1/2SE1/4NE1/4NW1/4
Portion of SW1/4SE1/4NE1/4NW1/4

Main Facilities Area T. 13 S., R. 12 E., SLBM, Utah (Approximately 20.80 acres)

Section 23: A Portion of the following:
NE1/4NE1/4NW1/4SW1/4; NE1/4NW1/4NW1/4SW1/4;
NW1/4NE1/4NW1/4SW1/4;SW1/4SE1/4SW1/4NW1/4;
SE1/4SE1/4SW1/4NW1/4;NW1/4SE1/4SW1/4NW1/4;
NE1/4SE1/4SW1/4NW1/4;SW1/4SW1/4SE1/4NW1/4;
SE1/4SW1/4SE1/4NW1/4;NW1/4SW1/4SE1/4NW1/4;
NE1/4SW1/4SE1/4NW1/4;SW1/4NW1/4SE1/4NW1/4;
SE1/4NW1/4SE1/4NW1/4;NE1/4NW1/4SE1/4NW1/4;
SW1/4NE1/4SE1/4NW1/4;NW1/4NE1/4SE1/4NW1/4;
NE1/4NE1/4SE1/4NW1/4;W1/2SE1/4NE1/4NW1/4;
SW1/4NE1/4NE1/4NW1/4;NW1/4NE1/4NE1/4NW1/4;
NE1/4NE1/4NE1/4NW1/4

Section 14: A Portion of the following:
SE1/4SE1/4SE1/4SW1/4;
NE1/4SE1/4SE1/4SW1/4;
NW1/4SW1/4SW1/4SE1/4

G-2 Thru G-17 Degas Well, (Approximately 24.85 acres)

G-2	Portion of N1/2SW1/4NE1/4 Section 24	Township 13 South, Range 12 East, SLBM
G-3	Portion of N1/2SW1/4NW1/4 Section 19	Township 13 South, Range 13 East, SLBM
G-4	Portion of N1/2NE1/4NW1/4 Section 24	Township 13 South, Range 12 East, SLBM
G-5	Portion of N1/2NW1/4NE1/4 Section 24	Township 13 South, Range 12 East, SLBM
G-6	Portion of S1/2SW1/4NW1/4 Section 18	Township 13 South, Range 13 East, SLBM
G-7	Portion of SW1/4NE1/4SE1/4 Section 24	Township 13 South, Range 12 East, SLBM
G-9	Portion of NW1/4NW1/4SW1/4 Section 21	Township 13 South, Range 13 East, SLBM
G-10	Portion of NE1/4NE1/4SE1/4 Section 20	Township 13 South, Range 13 East, SLBM
G-11	Portion of NE1/4SE1/4SW1/4 Section 20	Township 13 South, Range 13 East, SLBM
G-12	Portion of SE1/4NW1/4SW1/4 Section 20	Township 13 South, Range 13 East, SLBM
G-13	Portion of NW1/4NE1/4SE1/4 Section 19	Township 13 South, Range 13 East, SLBM
G-14A	Portion of SW1/4SW1/4SE1/4 Section 17	Township 13 South, Range 13 East, SLBM
G-15	Portion of NW1/4SE1/4NE1/4 Section 19	Township 13 South, Range 13 East, SLBM
G-16	Portion of SW1/4SE1/4SE1/4 Section 18	Township 13 South, Range 13 East, SLBM
G-17	Portion of SE1/4NW1/4SE1/4 Section 18	Township 13 South, Range 13 East, SLBM

Pace Canyon Fan Facility Township 13 South, Range 13 East, SLBM (Approximately 2.7 acres)
Section 30: Portion of E1/2NW1/4NW1/4

Total Approximately 77 Acres

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
January 29, 2007

CHAPTER 2

SOILS

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CHAPTER 2

SOILS

210 INTRODUCTION

This chapter and associated appendices of this M&RP contain all pertinent information relating to identification, management, and reclamation activities associated with the soil resources present in the disturbed area of the Dugout Canyon Mine and the Pace Canyon Fan Portal Breakout. The information has been compiled from the previously approved soil sections for the Sage Point-Dugout Canyon Mine and Soldier Canyon Mine permits, ACT/007/009 and ACT/007/018, respectively, as well as new soil survey information gathered as part of this permit application. The soil studies were conducted in accordance with the Utah Division of Oil, Gas, and Mining guidelines that were in effect at the time each study was conducted. All previous surveys fulfilled the requirements established by the U.S. Soil Conservation Service (SCS). The site specific soil survey conducted for this permit application was conducted in accordance with the standards set by the National Cooperative Soil Survey and analyzed by horizon according to Table 1 of the Division's "Guidelines for the Management of Topsoil and Overburden for Underground and Surface Coal Mining" (Leatherwood, 1988).

Additional information can be found in the following amendments: Methane Degassification Amendment (August 2003), Refuse Pile Amendment (February 2003), and the Leachfield Addendum A-1 (March 2001). The remainder of the State Lease ML-48435-OBA (SITLA Lease) was incorporated into the Dugout Canyon Mine permit area in 2005.

A base map of the soils in the permit area has been created by compiling maps from the "Soil Survey of Carbon Area, Utah" prepared by the SCS (Jensen, 1988). The base map illustrates the locations and areal extent of the endemic soil resources within the permit area at an Order III level (Plate 2-1). In the disturbed area of the permit area, an Order I survey was conducted. The locations and areal extent of the endemic soil resources within the disturbed area identified during the Order I survey are illustrated on Plate 2-2.

This chapter provides a description of the pre-mining resources as specified under R645-301-221. Topsoil and subsoil to be saved under R645-301-232 will be removed and segregated from other material. After removal, topsoil will be immediately redistributed in accordance with R645-301-242, stockpiled pending redistribution under R645-301-234, or if demonstrated that an alternative procedure will provide equal or more protection for the topsoil, the Applicant will seek approval from the Division.

In 2007, 40 acres was added to Federal Coal Lease U-07064-027821 to accommodate a revised mine plan. Refer to Plate 1-2 for the location of the acreage incorporated into the permit boundary.

220 ENVIRONMENTAL DESCRIPTION

The Dugout Canyon Mine facilities are located in the northern Book Cliffs - Roan Plateau region. More specifically, the mine is located within Dugout Canyon and Pace Canyon. The majority of the disturbed area is located in Dugout Canyon, with fan portal facilities located in Pace Canyon (Plate 2-1 and PC5-2). The elevation of the disturbed area ranges between approximately 7000 and 7150 feet above MSL. Soils in the mine area are not cultivated due to their thin nature and relatively steep slopes on which they lie. These soils have formed in colluvium derived from sandstone and shale. Soils in the area are usually shallow and consist predominantly of stony to gravelly sandy loams with moderate permeability. The soils are highly susceptible to water erosion. Rock outcrops consist of alternating layers of sandstone and shale. Subordinate amounts of coal are also present.

The Pace Canyon Fan Portal Breakout is located in Pace Canyon (T13S. R13E, Section 30, N1/2NW14). The elevation of the disturbed area ranges between approximately 6950 and 7060 feet above MSL. Soils in the mine area are not cultivated due to their thin nature and relatively steep slopes on which they lie. These soils have been previously disturbed by various activities in the canyon, such as road construction, exploration, mining, logging, etc. The fan area encompasses steep rocky canyon walls with unconsolidated sediment benches.

221 Prime Farmland Investigation

As part of the application for the Sage Point-Dugout Canyon Mine permit, ACT/007/009, a reconnaissance of the disturbed areas was conducted in 1980 to determine if prime farmland was present, and if present, whether it would be impacted by mining activities. The reconnaissance included the presently-proposed disturbed area within the Dugout Canyon Mine permit area. Copies of the applicable pages from the prime farmland investigation for the Sage Point-Dugout Canyon Mine permit and correspondence with the Soil Conservation Service have been included as Appendix 2-1. One area within the previous area of investigation was determined to potentially be prime farmland. However, this area was located near the mouth of Soldier Creek Canyon, outside of the presently proposed permit area. No prime farmland was found in Dugout Canyon or anywhere else within the presently-proposed permit area during the previous investigation.

As part of this permit application, a survey of the disturbed area of the Dugout Canyon Mine was conducted to determine whether the soils could be considered as prime farmland. The Dugout Canyon Mine disturbed area lies within the Rock outcrop-Rubbleland-Travessilla complex and Croydon loam soils area (Plates 2-1 and 2-2). Neither of these soils are considered suitable prime farmland as described by the SCS (Jensen, 1988). No evidence of past cultivation of the soils in the disturbed area was found during the site investigation. Hence, based on the results of both detailed investigations conducted within the area, it is concluded that no prime farmland exists within the proposed permit area.

The survey for prime farmland investigation for the fan portal site was completed by Leland Sasser of the NRCS. The area planned for disturbance is not considered prime farmland. Refer to Appendix 2-1 for a copy of Mr. Sasser's letter.

222 Soil Survey

Soil survey information for those portions of the permit area to be affected by surface operations at the Dugout Canyon Mine is presented in Sections 222.100 through 222.300.

222.100 Soils Map

A map delineating the areal extent of the endemic soils resources within the permit area at an Order III survey level is presented on Plate 2-1. A description of these soils has been reproduced from the SCS "Soil Survey of the Carbon County Area" (Jensen, 1988), and has been included as Appendix 2-2. An Order I soil survey was conducted of the Dugout Canyon Mine disturbed area in October and November 1995. Plate 2-2 illustrates the areal extent of the soils studied as part of the Order I soil survey, the location of the soil test pits excavated during the survey, and the extent of the identified soils.

Dan Larsen , Soil Scientist performed a survey of the Fan Portal area in 2003 and 2004. The 2003 survey was done in conjunction with a BLM environmental assessment for coal exploration holes. The 2004 survey was done on November 5, in conjunction with the proposed installation of the fan. A copy of the 2004 survey, test pit logs and a map showing the location of 2003 -2004 test pit locations is in Appendix 2-3.

The expansion of the permit area in 2007 to add acreage to Federal Coal Lease U-07064-027821 (40 acres, NW1/4NW1/4, Section 21, Township 13S, Range 13E) will include soils mapped as Units 62, 97, and 100 (see Plate 2-1). Surface disturbance will be permitted as needed to facilitate mining activities.

222.200 Soil Identification

Following is a list of the soils found in and adjacent to the permit area. Their corresponding map units as illustrated on Plate 2-1 are also listed.

<u>Map Unit</u>	<u>Soil Identification</u>
3	Badland-Rubbleland-Rock outcrop complex
6	Beje-Comodore complex
7	Beje-Trag complex

- 13 Cabba family-Guben-Rock outcrop complex
- 21 Croydon loam, 8 to 30 percent slopes
- 23 Curecanti family - Pathead complex
- 32 Frandsen-Gullied land complex
- 33 Gerst-Badland-Rubbleland complex, 15 to 50 percent slopes
- 36 Gerst-Strych-Badland complex, 3 to 50 percent slopes
- 37 Gerst-Strych-Badland complex, 50 to 70 percent slopes
- 46 Guben-Pathead extremely stony loams
- 47 Guben-Rock outcrop complex
- 50 Haverdad loam, moist, 1 to 5 percent slopes
- 52 Hernandez family, 3 to 8 percent slopes
- 53 Hernandez family, moist, 1 to 6 percent slopes
- 62 Midfork family-Comodore complex
- 66 Mivida gravelly fine sandy loam, 3 to 8 percent slopes
- 72 Pathead-Corecanti family association
- 75 Perma family, 15 to 40 percent slopes
- 81 Persayo-Greybull complex
- 84 Podo-Rock outcrop complex
- 86 Rabbitex-Doney family-Midfork family complex
- 88 Rabbitex family-Datino Variant complex
- 96 Rock outcrop-Rubbleland-Travessilla complex
- 97 Rottulee family-Trag complex
- 100 Senchert loam, 3 to 15 percent slopes
- 101 Senchert loam, 30 to 50 percent slopes
- 103 Senchert-Toza family complex
- 105 Senchert family-Senchert complex
- 107 Supert-Winetti complex
- 109 Silas-Brycan loams
- 113 Strych very stony loam, 3 to 15 percent slopes

According to the SCS (Jensen, 1988), soils present on the east facing slopes of Dugout Canyon are part of the Rock outcrop-Rubbleland-Travessilla complex while those on the west facing slopes are part of the Croydon loam and Midfork family-Comodore complex.

However, observation of the soils present on the west and northwest facing slopes suggest that inclusions of the Comodore-Datino Variant complex are prevalent throughout. The conclusion that Comodore-Datino Variant complex soils are present in this area is based on the presence of characteristics typical of these soils such as: 40 to 60 percent slopes, elevations of slopes between 6800 and 8100 feet, 40 to 60 percent slopes, Douglas-fir and related vegetation, and very stony, relatively shallow soils. A telephone conversation between Mr. Chris D. Hansen of Canyon Fuel

Company, LLC, Ms. Vicky Bailey of EarthFax Engineering, Inc. and Mr. Leland Sausser of the Natural Resources Conservation Service concerning the presence of Comodore-Datino Variant complex soils within areas mapped as Croydon loam occurred on March 3, 1998. Mr. Sausser briefly reviewed available maps and photos and agreed that this may indeed occur but the maps in the Soil Survey of Carbon Area, Utah (Jensen, 1988) are generally correct as published.

Soils present in the narrow V-shaped Dugout Canyon that lie within the disturbed area of the mine have been identified and characterized. A large portion of the mine area is covered with overburden that consists of soil mixed with coal waste and/or waste rock from previous mining operations at the site. In these areas, the original soil structure has been obliterated or the native soils have been deeply covered. The remainder of the disturbed area has soils that appear to be in-place or have been only slightly disturbed. The approximate boundary between the overburden and in-place and/or slightly disturbed soils is illustrated on Plate 2-2. The overburden has been labeled on Plate 2-2 as OB while the in-place soils have been labeled as TS.

The overburden is a mixture of rock and/or coal waste with Travessilla soils. The Travessilla soils are classified as loamy, mixed (calcareous) mesic, Lithic Ustic Torriorthents (Jensen, 1988). Soil type TS is a loamy, mixed, Typic Haploboroll.

In Pace Canyon the site is mapped as being soil map Unit 96 and the adjacent soils being map Units 21, 84 and 97 (SCS, 1988).

222.300 Soil Description

The description of the soils has been based on the following information: taxonomic classification, horizon name and depth, color, texture (percent sand, silt, and clay), class, structure, percent rock fragments and organic matter, pH, EC, and solubility of calcium, magnesium, and sodium. This information is included in the soil test pit logs in Appendix 2-3 and the lab data sheets included in Appendix 2-4. The description of soils outside the disturbed area boundary or on the steep slopes within the boundary have been taken from the SCS (Jensen, 1988).

Overburden. The overburden (disturbed soils) are located both east and west of Dugout Creek in areas where previous mining activities have occurred (Plate 2-2). Much of the Dugout Canyon Mine disturbed area is covered with overburden. Four test soil pits, TP-2, 3, 9, and 11 were excavated in overburden areas and their locations are illustrated on Plate 2-2. The overburden material could loosely be termed a "gravelly loam" that generally consist of loam mixed with coal debris, wood fragments, bricks and rock. The rock concentration varies between 10 and 40 percent and varies in size from gravel to boulder. Rock fragments are composed of sandstone with some siltstone blocks. This material is found in the relatively flat areas and on most of the steep slopes; is moderately well drained; and supports sagebrush, juniper, rabbit brush, and a variety of grasses. Thickness of this material varies from a few feet to more than eight feet. Select samples of the soil mixed with the rock were obtained and analyzed for the following parameters.

- pH
- Electrical Conductivity (EC)
- Saturation Percent
- Calcium (soluble)
- Magnesium (soluble)
- Sodium (soluble)
- Sodium Absorption Ratio (SAR)
- Total Sulfur
- Acid/Base Potential
- Total Organic Carbon
- Phosphate
- Nitrogen (nitrate)
- Boron
- Selenium
- Available Sodium
- Exchangeable Sodium
- Alkalinity
- Total Kjeldahl Nitrogen
- Water Holding Capacity
- Percent Coarse Fragment, Sand, Silt, and Clay

Results of the laboratory analyses of the samples have been summarized in Table 2-1.

A typical profile of this overburden was compiled from the soil descriptions from three soil test pits TP-2, TP-3, and TP-11. A fourth pit, TP-9, was excavated adjacent to the mine access road in an

area labeled as overburden. However, within a few feet of ground surface and beneath the road base, the material appeared to be undisturbed. Therefore, the information from this pit was not used to describe the overburden present at the mine.

The overburden consists of very dark gray (2.5Y 3/1) loam mixed with coal, wood, gravel, and cobble from 0 to 3 feet. The loam is dry to slightly damp, slightly alkaline with an average pH of 7.3, and an average concentration of the following parameters: EC value of 0.38 mmhos/cm, soluble calcium concentration of 1.78 meq/l, soluble magnesium concentration of 1.47 meq/l, soluble sodium concentration of 0.51 meq/l, SAR value of 0.40, acid/base potential of 72.3 tons of calcium carbonate/tons of material, boron concentration of 0.42, selenium concentration less than 0.02 ppm, and water holding capacity of 8.6%. The percentage of rock is approximately 20% or more. This unit overlies brown (7.5YR 4/4) to dark grayish brown (10YR 4/2) loam with some coal waste, gravel and cobbles, and some wood fragments. This underlying unit extends to depth of at least eight feet in portions of the disturbed area. The concentration of coal waste appears to decrease with depth while rockiness increases. The percentage of rockiness ranges from 20 to 40%. The loam is dry to moist, slightly alkaline with a pH of 7.4, has an EC value of 0.37 mmhos/cm, soluble calcium concentration of 1.10 meq/l, soluble magnesium concentration of 2.00 meq/l, soluble sodium concentration of 0.50 meq/l, an SAR value of 0.40, an acid/base potential of 16.6 tons of calcium carbonate/tons of material, a boron concentration of 0.48 ppm, a selenium concentration less than 0.02 ppm, and a water holding capacity of 7.9%.

Soil Type TS. Soil type TS is found on both sides of Dugout Creek in the northeastern portion of the disturbed area and in the southwestern portions of the disturbed area by the sediment pond (Plate 2-2). TS soils in the sediment pond area appear to have been previously disturbed, resulting in the mixing of the soil horizons. The TS soils are found in flat lying areas and on slopes with grades up to 40% or more (Plate 2-2). The soil supports vegetation consisting of sagebrush, cottonwood, gambel oak, grass, pinyon, and fir. This soil consists of well drained soils that have formed in colluvium and residuum from sandstone, siltstone, and shale. Samples from this soil were obtained from soil pits TP-1, 4, 5, 6, 7, and 8. Soil test pits 14 and 14A were excavated and described and soil thickness were used to estimate available borrow material. However, soil

CHAPTER 3

BIOLOGY

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CHAPTER 3

BIOLOGY

310 INTRODUCTION

This chapter presents a description of the biological resources found on the Dugout Canyon permit and adjacent areas. Additional information can be found in the following amendments: Methane Degassification Amendment (August 2003), Refuse Pile Amendment (February 2003), and the Leachfield Addendum A-1 (March 2001). The remainder of the State Lease ML-48435-OBA (SITLA Lease) was incorporated into the Dugout Canyon Mine permit area in 2005. In 2007, 40 acres was added to Federal Coal Lease U-07064-027821 to accommodate a revised mine plan. Refer to Plate 1-2 for the location of the acreage incorporated into the permit boundary.

The data used in preparation of this chapter have been gathered from the Sage Point-Dugout Canyon Mining and Reclamation Plan, Soldier Creek Coal Company Mining and Reclamation Plan, Environmental Research and Technology, Inc., Utah Division of Wildlife Resource (UDWR), Utah State Fish and Game, Eureka Energy Company (Nicolas Temnikov and Christopher A. Slaboszewicz), Soil Survey of Carbon Area, Utah, aerial photography, and Natural Gas Corporation of California.

311 Vegetative, Fish and Wildlife Resources

Vegetative, fish, and wildlife resource conditions in and adjacent to the proposed Dugout Canyon Mine are discussed in Section 320.

312 Potential Impact to Vegetative, Fish and Wildlife Resources

Potential impacts to vegetative, fish, and wildlife resources and the associated mitigation plan are presented in Sections 330 and 340 of this chapter.

313 Description of Reclamation Plan

The reclamation plan used to restore the vegetative, fish and wildlife resources to a condition suitable for the postmining land use is presented in Section 340.

320 ENVIRONMENTAL DESCRIPTION

321 Vegetation Information

This section contains the environmental descriptions of the vegetation for the permit and adjacent areas.

321.100 Plant Communities Within the Proposed Permit Area

Vegetation communities of the permit area were first investigated by Dr. Steven Richardson of Logan, Utah during 1979. These studies encompassed the 22,506 acres of the formerly proposed Sage Point - Dugout Canyon permit area. Dr. Richardson's studies were subsequently upgraded in 1980 by Mr. Steven R. Viert and presented in the Sage Point - Dugout Canyon permit application submitted December 8, 1980 and approved by the Division in May, 1984 (Permit No. ACT/007/009). The vegetation designations used on Plate 3-1 are a combination of their studies, aerial photography, in association with the Soil Survey of Carbon Area, Utah and field verification.

Plate 3-1 has been prepared using the following vegetation designations:

Barren Ground	(B)
Douglas Fir	(DF)
Deciduous Streambank	(DS)
Farmland-Weeds	(FW)
Greasewood-Sagebrush	(GS)
High Shrubs	(HS)
Mixed Conifer	(MC)
Mixed Conifer-Mountain Brush	(MCMB)
Pinyon-Juniper	(PJ)
Ponderosa Pine	(PP)

Quaking Aspen	(QA)
Sagebrush	(S)
Shrub-Grass-Juniper	(SGJ)
Deciduous Stream Bank Vegetation (DSR) and limited riparian vegetation (Pace and Rock Creek)	

As discussed in the report prepared by Mt. Nebo Scientific, the Dugout Canyon disturbed area contains riparian, rabbitbrush/yellow sweet clover, and Pinyon/Juniper vegetation designations (see Appendix 3-1).

The dominant vegetation communities occurring in the area are somewhere below the climax stage of succession. Historic livestock grazing practices have caused a decline, or disappearance, of many naturally occurring species and their replacement by others (often noxious weeds). Over several years, this effect has altered the composition of the floral communities of the area.

Other impacts to the vegetation communities of the area have resulted from the previous construction of roads. Roads and trails tend to follow drainages and have thereby impacted the riparian, sagebrush, mountain brush, and coniferous communities. Weeds usually dominate the disturbed road banks. Mining facilities in Dugout Canyon constructed prior to the enactment of SMCRA displaced an additional small amount of native vegetation.

Baseline sampling by Dr. Richardson only occurred on five of the ten communities existing within the permit area. These five communities are Douglas Fir, Mixed Conifer, Pinyon-Juniper, Shrub-Grass-Juniper, and Deciduous Streambank. Quantitative descriptions of floral communities presented in this M&RP are based on the former Sage Point-Dugout Canyon permit document. Appendix 3-1 presents data for the vegetation communities discussed in this section. The adequacy of the sampling effort is indicated in Appendix 3-1.

The farmland-weeds vegetation type resulted from abandoned agricultural activities (due to lack of water) and is significant only from the standpoint that mule deer tend to feed on remaining alfalfa during the spring green-up. It should be noted that none of this community occurs within the permit boundary.

Due to multiple consultants/companies gathering vegetation data, the following table has been provided to clarify the plant communities names used by each.

Sampling Organization	Plant Community			
Natural Resources Conservation Service	Riparian	Pinyon-Utah Juniper	Douglas-fir	Disturbed
Richardson/Viert Study	Deciduous Streambank	Pinyon-Juniper	Mixed Conifer and Douglas fir	N/A
Mt. Nebo Scientific Study	Riparian	Pinyon/Juniper	N/A	Rabbitbrush/ yellow sweet clover
Pat Johnston Study	Riparian	Pinyon/Utah Juniper	N/A	N/A

Douglas Fir

The Douglas Fir community occurs on the north facing slopes at upper elevations in deeper productive soils. Floral and structural composition is that of a forest community consisting primarily of Douglas Fir with a few scattered Ponderosa pine, Rocky Mountain juniper, and quaking aspen trees in the overstory.

Ground cover of the overstory in the Douglas Fir community averages 65.0% and productivity of the trees was not determined. This community exhibits an average of 380.5 trees/ac comprised mainly of Douglas Fir (68.8% of all trees), Ponderosa pine (26.1%), and pinyon pine (4.1%). Examination of average basal diameters of the trees indicates a late-successional and mature community.

Ground cover of the understory is dominated by shrubs (18.4% cover), especially serviceberry, big sagebrush, snowberry, and creeping barberry with 4.2, 3.8, 3.8, and 2.5% cover, respectively. Grasses exhibit a sparse 0.8% cover while forbs only average 1.6% cover. Productivity of this understory totals 35.8 g/m² or approximately 320 lb/ac. Shrubs contribute 26.2 g/m² while grasses and forbs contribute 2.7 g/m² and 6.4 g/m², respectively. Creeping barberry, mountain mahogany, big sagebrush, and snowberry shrubs dominate with 7.7, 5.0, 4.9, and 4.9 g/m², respectively. The adequacy of the sampling effort is indicated in Appendix 3-1.

Mixed Conifer

The mixed conifer vegetation type is an ecotonal community which occurs on the slopes of mid-elevational canyons that cut into the Book Cliffs. Floral and structural composition is that of a forest community consisting primarily of coniferous tree species in the overstory. These overstory tree species include Douglas Fir, Rocky Mountain maple, pinyon pine, and Utah juniper.

Ground cover of the overstory in the mixed conifer community averages 24.5% with Douglas Fir, Rocky Mountain juniper, and Rocky Mountain maple trees dominating with 10.0, 5.0 and 3.5% cover, respectively. Productivity of the trees was not determined; however, the community exhibits a density of 223.7 trees/ac. Examination of average basal diameters of the trees indicates a mid- to late-successional community with young Douglas Fir trees.

Ground cover of the understory is dominated by shrubs (11.5% cover), especially snowberry and big sagebrush with 4.5 and 3.5% cover, respectively. Grasses contribute another 4.5% cover, especially western wheatgrass (3.0% cover), while forbs exhibit only 2.5% cover. Productivity of this understory totals 38.5 g/m² or approximately 345 lbs/ac. Of this total, shrubs contribute 20.2 g/m², grasses 4.9 g/m², and forbs 13.1 g/m² with big sagebrush, Louisiana sagewort, and mountain mahogany dominating (7.7, 5.9, and 3.3 g/m², respectively).

Pinyon - Juniper

The pinyon - juniper community is primarily an open woodland of mature pinyon pine and Utah juniper with very sparse understory vegetation. The community occurs mainly on mesa tops and broad alluvial deposits at the foot of the Book Cliffs, as well as on the more southern exposed slopes of the lower canyons. Pinyon - juniper is one of the most important vegetation communities for mule deer during the winter.

Ground cover of the overstory in the pinyon - juniper community averages 20.0% and productivity of the trees was not determined. This community exhibits an average of 291.1 trees/ac comprised entirely of pinyon pine (43.0% of the trees) and Utah juniper (57.0%). Examination of average basal diameters of the trees indicates a near climax mature community.

Ground cover of the sparse understory is dominated by shrubs (5.2% cover), especially by mountain mahogany with 2.5% cover. Cover by grasses was non-existent in the sampled areas and forbs only averaged 3.4% cover with euphorbia (spurge family) the dominant forb with 2.2% of the cover.

The productivity of this understory is very light with only 3.3 g/m^2 (30 lbs/ac) of total annual production. Black sagebrush, mountain mahogany, and buckwheat were the dominant plants with 0.7, 0.5, and 0.5 g/m^2 , respectively.

The Pinyon-Utah Juniper community within the disturbed area boundary was surveyed during the Fall of 1997 by Patricia Johnston (see Appendix 3-1). During the survey the cover was 65.94%, with the woody species stems per acre being 2,334.4. George Cook of the Natural Resources Conservation Service (NRCS) surveyed the site to determine pre-mining productivity as defined in Item 4, Section IV, Productivity Measurements, UDOGM Vegetation Guidelines, Appendix A, February 1992. Productivity is discussed in Section 321.200.

Deciduous Streambank

The deciduous streambank community occurs only in a narrow band (usually less than 50 ft wide) along portions of Dugout Creek and other narrow valley bottoms with at least intermittent stream flows. This community differs from adjacent vegetation on canyon slopes (usually mixed conifer, Douglas fir, sagebrush, or mountain brush) in that deciduous trees and shrubs are more common on banks of stream channels. Floral and structural composition is that of a forest community consisting primarily of narrowleaf cottonwood, Rocky Mountain maple, and Douglas Fir trees in the overstory.

Total ground cover of the community averages 63.4% with 38.2, 14.6, 2.4, and 0.4% of the cover due to trees, shrubs, grasses, and forbs, respectively. Dominant trees in the overstory include Rocky Mountain maple, narrowleaf cottonwood, Douglas Fir, and water birch with 12.0, 11.3, 6.0, and 5.3% cover, respectively. Productivity of the overstory was not determined. However, the community exhibits an average of 216.1 trees/ac. Examination of average diameters of the trees indicates a mid- to late-successional community with only fair reproduction of the overstory species.

Ground cover of the understory is dominated by shrubs (14.6% cover), especially elderberry, snowberry and Wood's rose with 3.0, 3.0 and 2.7% cover, respectively. Cover by grasses (2.4%) and to a certain degree, forbs (8.2%), is subdued because of past grazing pressure by livestock, but is still a viable component of the community. Productivity is known only for the community as a whole (102.5 g/m^2 or 912 lbs/ac), and despite past grazing pressures, it is still the most productive community in the area.

In Pace Creek and Rock Creek Canyons, heavy grazing and erosion has resulted in sections of the stream banks having little or no deciduous and/or riparian vegetation. The vegetation within these drainages has been identified on Plate 3-1 with the symbol DSR.

Riparian (1997)

During 1997 a study was performed on the riparian community of Dugout Creek by Patricia Johnston. The study covered approximately 2,100 feet of the creek channel. The study included the gathering of data on cover (84.83%) and woody species density (1,624.6 stems per acre) within the disturbed area boundary. George Cook of the Natural Resources Conservation Service surveyed the site to determine productivity and condition (see Section 321.200). Reports from Patricia Johnston and George Cook are included in Appendix 3-1.

The majority of the riparian vegetation and soils within the study area were disturbed during an earlier mining operation with debris evident along much of the length of Dugout Creek. As was common during early mining, the channel was most likely realigned as additional space for facilities was needed.

Shrub - Grass - Juniper

The shrub - grass - juniper vegetation type is another ecotonal community found between the greasewood - sagebrush and pinyon - juniper communities primarily on south and east facing steep rocky slopes along the base of the Book Cliffs. It can occasionally be found on upland benches and flats. This community exhibits a greater abundance of perennial grasses than any other vegetation type found within the area.

The shrub - grass - juniper community exhibits a sparse overstory of pinyon and juniper trees (2.9% ground cover) which at maturity do not obtain the size of the trees in the pinyon - juniper community. Density of these trees only averages 57.3 trees/ac, and productivity of this sparse overstory was not measured.

The understory of this community is dominated by grasses with 9.3% ground cover, while shrubs exhibit 6.4% cover and forbs exhibit a sparse 0.4% cover. Dominant species include creeping wildrye, galleta grass, and black sagebrush with 5.4, 3.2 and 4.6% cover, respectively. Productivity

of this understory totals 59.3 g/m² or 528 lbs/ac with contributions by grasses, shrubs, and forbs of 40.9, 17.1, and 1.2 g/m², respectively. Dominant plants are the same as indicated for ground cover.

Ponderosa Pine

Quantitative information for the Ponderosa pine community does not exist as it is too limited in areal extent and it has not been, nor will it be, disturbed by mine facilities. The community is present in the high canyons of the Book Cliffs usually in association with Douglas Fir and mixed conifer vegetation types. Ponderosa pine is the predominant species present; however, Douglas Fir, pinyon pine, and Utah juniper occur with less frequency. A thin growth of mountain shrubs as well as grasses and forbs similar to the mixed conifer community is present in the understory.

Quaking Aspen

Quantitative information about the aspen community was not collected due to its limited areal extent within the upland benches of the Book Cliffs; and because it has not been, nor will it be, disturbed by the mining operation. Quaking aspen is the dominant species in the overstory with an occasional Rocky Mountain maple or Gambel's oak being present. The understory is often park like, dominated by grasses and forbs with only a few shrubs present (mainly snowberry).

Sagebrush

The sagebrush community occurs on the dip slope between 7,200 and 9,000 feet in elevation. Quantitative information was not collected for this community as no mining disturbance has occurred in the past nor is expected to occur in the future. This community often intergrades with other communities, making delineation difficult in certain instances. However, big sagebrush (usually the subspecies mountain big sagebrush) is the dominant species in the community, existing in characteristically dense stands. Common species existing in the understory include lupines, wheatgrasses, bluegrasses, and scarlet gilia.

In 1996, the mean total living cover for the mine's disturbed area (Plate 3-1B) and reference area were 36.90% and 47.50% respectively (Mt. Nebo Scientific, August 1, 1996). The area surveyed by Mt. Nebo was disturbed in a previous mining operation, with no indication that reseeding was

completed when mining ceased. NRCS range site descriptions/conditions indicate that the area (surveyed by Mt. Nebo) prior to disturbance was most likely Pinyon/Utah juniper - upland very steep shallow loam.

Refer to Appendix 3-1 for the 1996 Mt. Nebo report discussing the vegetation sampling done at the Dugout Canyon Mine site within the proposed disturbed area. The Mt. Nebo report discusses the vegetation cover, composition, density, reference area, and includes photographs of the transects and reference area.

Pace Canyon - Disturbed Pinyon Juniper

On August 13 - 14, 2003, quantitative and qualitative data were taken on the vegetation of the Pace Canyon fan portal area and it's reference area, by Mt. Nebo. The transect placement technique was employed with the goal to adequately sample a representative subset of the site. The mean total living cover of the vegetation for the site was estimated at 52.50%, 44.67% of this total was from the understory and 7.83% was overstory. Pinyon pine and Utah juniper were the most common species in the overstory, big sagebrush was the most common woody species in the understory. The site had a host of forbs, nearly all of which were annual exotics or weedy species (most common was poverty weed). The only grass species inventoried was cheatgrass. The majority of the site has been previously disturbed by various activities, such as road construction, logging, exploration and mining. Refer to Appendix 3-4 for a copy of the Mt. Nebo report.

40 Acres - Federal Coal Lease U-07064-027821

Although, Plate 3-1 shows the area within T13SR13E, Section 21, NW1/4NW1/4 to be sagebrush the following descriptions are from examination of an aerial photograph taken November 2006. NW1/4NW1/4NW1/4 is sagebrush, with some scattered juniper throughout, SW1/4NW1/4NW1/4 is sagebrush in the center, with Douglas fir, juniper and pinion pine on the outside edges on the east and west, SE1/4NW1/4NW1/4 is sagebrush and quaking aspen with Douglas fir, juniper and pinion pine on the outside edges on the west and north. SE1/4NW1/4NW1/4 is approximately 30% disturbed and the NE1/4NW1/4NW1/4 is approximately 50% disturbed by roads and logging. In the NE1/4NW1/4NW1/4 the west half is sagebrush and the east half is quaking aspen, Douglas fir, juniper and pinion pine. A spring in the NE1/4NE1/4NW1/4NW1/4, likely has a limited riparian vegetation community associated with it, the limiting factor would be the flow which has been

measured at a maximum of 1 gpm and a minimum of 0.25 gpm (Appendix 7-2). The spring is located over an area where minimal subsidence is anticipated (Appendix 5-12, see figure entitled "Potential Subsidence....."). The locations of the vegetation described are approximate.

321.200 Land Productivity Prior to Mining

The land productivity of the area to be disturbed by mining was not measured in 1925 when mining first disturbed the area. Appendix 3-1 contains additional data pertaining to vegetation.

George S. Cook of the NRCS surveyed the condition and production of the range site areas within the disturbed area boundary in 1997, his findings were as follows:

PJ Sage	Condition - Good	Production - 800	Potential Production - 800
Riparian	Condition - Fair	Production - 1500	Potential Production - 2200

The production is based on air dry weight of total herbage produced per acre. Patricia Johnston accompanied Mr. Cook. See Appendix 3-1 for a copy of the December 3, 1997 letter from Mr. Cook.

Pace Canyon - Disturbed PJ

Since the site was previously disturbed, production estimates were provided by Dean Stacy of the NRCS (Natural Resources Conservation Service). A letter and attachments from Mr. Stacy are included in Appendix 3-4. Production estimates for High Mountain Loam with west facing slopes for a normal year with medium cover was 600, eastern facing slope with Upland very steep stony loam was estimated at 550 annual production. Mt. Nebo estimated the total woody species density at the Pace Canyon site to be 444.

322 Fish and Wildlife Information

A summary of the fish and wildlife resource information for the permit and adjacent areas is contained in Sections 322.100 through 322.300. The data pertaining to wildlife in the following sections were collected by the UDWR (J. S. Burruss, L. B. Dalton, Larry J. Wilson, Ben Morris, Bill Bates, etc.), Eureka Energy Company personnel, EIS Environmental and Engineering Consulting and Environmental Research and Technology, Inc.

322.100 Level of Detail

The scope and level of detail within this M&RP are sufficient to design the protection and enhancement plan for wildlife and fish in the area.

This assessment of wildlife resources has been compiled pursuant to guidelines issued by the Division.

322.200 Site-specific Resource Information

Eight permanent experimental and four permanent control wildlife transects were established in the permit and adjacent areas by UDWR in December 1979. Appendix 3-2 contains a figure showing the transect locations. The transects were located within pinyon-juniper, desert shrub, and mixed conifer vegetation communities; and used to monitor wildlife habitats. The wildlife habitats included in the study were small mammals, medium-sized mammals, large mammals, raptors, game birds, song birds, reptiles, and amphibians. The four permanent control transects were located in areas not proposed for disturbance by mining operations. Appendix 3-2 contains the information pertaining to the transect studies.

Macroinvertebrates and Fish

Due to the variable nature of the stream flows in the project area and the limited number of species of macroinvertebrates identified by the UDWR and the Division, further study of aquatic macroinvertebrates was not pursued.

The low importance of the streams, as a fishery resource, has categorized them as being of little value for extensive aquatic study. Therefore, detailed aquatic studies were not performed on Dugout Creek in accordance with permission from the Division in 1979 (see letter from Mary Ann Wright, Appendix 3-3).

Small Mammals

Small mammals represent a significant part of the ecosystem. The majority are herbivores and are the primary source of food for higher trophic levels, particularly raptorial birds, canids, and felids.

Small mammals, including shrews, mice, voles, chipmunks, and ground squirrels were sampled with live traplines within each transect. Relative abundance was determined for each species by transect, but not by habitat type, within the individual transects. Data concerning bats were not collected during this study, however a bat survey of the riparian and disturbed area in Dugout Canyon was performed in 1997 by Mark Perkins and included in Appendix 3-3.

Medium Mammals

The transect study did not attempt to make density estimates due to the extreme ecological variability of these mammals. The study did identify species and frequency of habitat use in the area.

Limited portions of Dugout Canyon provide habitats for weasels, badgers, and skunks. Even though the breeding and rearing activities of these non-migratory species and their dens and burrow systems are important to maintenance of their populations, the area to be disturbed is small and the species are widespread and adapt easily to the activities of man.

Large Mammals

Habitat use by all large mammals, other than mule deer, was determined in a quantitative manner. Plate 3-2 (confidential) exhibits the significant habitat for mule deer and elk in the area. Habitat use in the proximity of the permit area was determined by pellet group count and observation of track frequency. Pellet counts were made in late spring, following movement to summer range. Track counts were made once each month in January through May on all transects.

The area to be disturbed parallels a water source and therefore is important to all wildlife species. The fact that elk and deer utilize some portion of the permit area during the year means that all activities must be considered.

Mule deer on the mine area are considered by the UDWR to be part of Herd Unit 32 and the elk as part of Herd Unit 24. The deer utilize the entire permit area but seasonally concentrate in and utilize specific habitat types. During the summer the mule deer generally utilize all of the habitats near water. The most heavily used communities are the sage, mountain brush-mixed conifer, and the

composite of aspen, mountain mahogany, manzanita, and pine/fir. There is normally more browse in these communities than in the others.

With the onset of fall and winter, the mule deer latitudinally migrate. Initially (late fall and early winter) they concentrate on the plateau area where they intermingle with the elk; but when the snow gets too deep for them to traverse they move into the low elevation sage and pinyon-juniper areas. The wintering areas for mule deer make them susceptible to road strikes in the vicinity of the proposed haul and access road for the Dugout Canyon Mine. The access roads to Pace and Rock Canyon crosses area used by deer as winter range, however traffic is sporadic during the winter months and heavier during the summer and fall months.

Raptors

Golden eagles are a common year long resident of the area, with suitable nesting habitat spread throughout the permit area. The cooper's hawk is known to nest in the permit area.

A variety of falcons are year long residents of the area, utilizing cliffs for their nests. To date there are no known aerie sites for falcons within or immediately adjacent to the disturbed area.

Raptors were studied during the 1979 - 1980 UDWR transect study, in 1981 by Janet Lee Young and by Hayden-Wing Associates in 1984. These reports are provided in Appendix 3-3.

Raptor nest surveys were done by the UDWR in 1995, 1997, 1998, and 1999. The nest locations identified in 1997 and 1998 are shown on Plate 3-2 in the mine's UDOGM confidential folder (confidentiality required by UDWR). All nests located in the 1997 survey were cliff nests (Ben Morris, UDWR, January 20, 1998). All nests located in the 1998 and 1999 surveys were cliff nests.

Migratory and Song Birds

Birds were studied during the 1979 - 1980 UDWR transect study. However, a more extensive study was done by Hayden-Wing Associates in 1984. Their report can be found in Appendix 3-3.

Reptiles and Amphibians

Increasing elevation rapidly reduces the number and kind of reptiles and amphibians. Furthermore, in Utah the effects of the more northern latitude reduces the number of herptiles in much the same way as does the increase in elevation.

These geographical and associated climatic factors have eliminated most desert species, leaving species that are adapted either to mountain habitats or montane type habitats. Based on extensive literature review and limited field work, it was determined that potentially 8 species of amphibians and 18 species of reptiles inhabit the area. Of these species only 5 were recorded by the UDWR in 1980: Eastern fence lizard, Sagebrush lizard, Tree lizard, Short-horned lizard, and the Gopher snake. A WESTECH biologist observed two other species in 1979, the Western whiptail and the Midget faded rattlesnake. All amphibians and reptiles are legally protected, but since the species listed are all widespread throughout the mountains of Utah, none are treated as high-interest species. It is doubtful that the proposed action would seriously impact populations, but localized individuals may be involved in habitat destruction due to subsidence. An exception to this would be if subsidence caused drying of present wet habitats essential to reproduction. Refer to Section 332 for a discussion of "Possible Short-Term and Long Term Impacts to Species Dependent on Springs, Creeks and Drainages".

Pace Canyon

Wildlife indigenous to the general area of the project include amphibians, reptiles, birds and mammals. A copy of the 2004 raptor survey map for the area is included in the 2004 Annual Report. Calling surveys of the area were also done in 2003 and 2004 for the Mexican spotted owl (Appendix 3-3).

Amphibians - There are six common species of amphibians known to occur within the general area (mesic area). These species could be present within the Pace Canyon area, but their occurrence is doubtful due to arid conditions that prevail over the majority of the area.

Reptiles - There are ten species of reptiles known to inhabit the region. The limited acreage of disturbance, however, should not be considered a threat to these species, due to the abundance of pinyon and juniper habitat, as well as sagebrush and grass habitat throughout the area.

Birds - There are approximately 185 bird species that could either be potential yearlong residents or frequent the site during portions of the year. Of these, loggerhead shrike (BLM Sensitive species) and raptors are discussed below.

A survey of the fan portal area indicated no nesting loggerhead shrikes, *Lanius ludovicianus*, near the proposed roads. This species is dependent upon the broad, open sagebrush and grass plain, as well as the presence of widely spaced pinyons and junipers. A summary of the inventory conducted for this species and a negative determination of its presence is included in Appendix 3-4 (BLM EA, UT-070-2003-55).

Raptor surveys, completed in May of 2004 by the UDWR, revealed a number of raptor nest sites on the open lower benches and cliff faces in and surrounding Pace Canyon. Two inactive golden eagles (*Aquila chrysaetos*) nests on the outer edge of one mile radius from the fan site were inventoried in 2004 (Section 24, R12E T13S) and two potential raven nests were located in previous years in Section 23, R12E T13S.

The 2004 spring inventory identified no active and or tended Golden Eagle nests within a 1/4 mile of the proposed site. An inventory in 2002, 2003 and 2004 for Mexican Spotted owl and Goshawk did not reveal the presence of these species within the fan project area.

Mammals - Ninety-two (92) species of mammals have the potential to inhabit the region. Of these, the following species; mule deer, *Odocoileus hemionus*, elk, *Cervus elaphus* and pronghorn antelope, *Antilocapra americana*, have been identified to live within or adjacent to the affected area.

As shown on Plate 3-2, the area of the fan site is designated summer range for mule deer and year-long range for elk.

Pronghorn antelope occupy the salt desert shrub habitat of the lower elevation ranges along the Clark Valley Road. This habitat is classified as high priority year-long range for pronghorn.

Threatened and Endangered Plant and Wildlife Species. Passage of the Endangered Species Act of 1973 (Public Law 23-20S) provided the legal basis for establishment of lists of endangered and threatened plant and wildlife species (Appendix 3-3).

Although three species (black-footed ferret, bald eagle, and peregrine falcon) on the list could potentially inhabit the area, an inventory of endangered wildlife species performed in 1979 by the UDWR recorded no threatened and endangered species within the proposed permit area. No confirmed sightings of black-footed ferrets have occurred within Carbon County during 1995, 1996, and the first quarter of 1997, however bald eagles have been seen flying in the vicinity of the mine (Bill Bates, UDWR).

A literature review and field studies for both the Soldier Canyon and the Sage Point - Dugout Canyon permit documents were performed to assess the possible presence of any threatened, endangered, or sensitive plant and wildlife species in the respective permit and adjacent areas.

These study areas included the proposed Dugout Canyon disturbed area. The literature review indicated that no species listed (or proposed as candidates) by the U.S. Fish and Wildlife Service (FWS) as threatened or endangered were likely to inhabit the area. In addition, the field investigations which occurred in 1979, 1980, 1983, and 1984 did not identify or locate any threatened or endangered species. No threatened or endangered plant species including Canyon sweetvetch were found within the disturbed area by Robert Thompson during his 1995 survey (see Robert Thompson letter, Appendix 3-1). Mr. Thompson is qualified and has performed threatened and endangered surveys for the U.S. Forest Service.

As reported in the 1997 bat survey "we noted no suitable habitat, did not record via detectors or capture, or note by indicators presence of *Corynorhinus townsendii*. It is our opinion the bat does not occur in the immediate vicinity of the proposed disturbance area. We also did not note suitable habitat for or encounter *Euderma maculatum* by mist net, via detectors or during audible bat transects".

Windy Gap Process as it Applies to Existing Coal Mines in the Upper Colorado River Basin

Per meetings with Division of Water Quality personnel during application for a UPDES permit in 2004, "there is no data supporting the premise that surface waters associated with the area of the mine operations reached the Price River or Colorado River prior to or since mining disturbance".

Mining Consumption:

Culinary Water is purchased from PRWID and hauled by D & D Trucking to the Mine.
Estimated **Purchased** Gallons/yr: 1,003,200

Ventilation Consumption/Evaporation:

29,354 gallons/day (3/05/04 ventilation survey)
44,000 gallons/day (9/13/04 ventilation survey)
 $73,354 \times 0.5 = 36,677$ gallons/day (survey average)
 $36,677 \times 365 = 13,387,105$ gallons/yr

Coal Producing Consumption/Coal Moisture Loss:

Water added to coal produced - 4.03% inherent moisture - source Dugout Geologist
5.80% run-of-mine moisture - year to date average
1.77% moisture added to coal by cutting operation

Projected Tonnage 2004 4,245,737 tons

Projected Tonnage 6 year average 4,369,084 tons

Tons water/yr 77,333

Pounds water/yr 154,665,562

Gallons water/yr 18,522,822

Sediment Pond Evaporation:

Mine Site Pond 0.107 acres (surface area)
18.1 in/yr (high estimate based on HCI Technical Memo, August 22, 2002)
0.16 ac/ft
7030 gallons/yr

Refuse Pile Pond 0.41 acres (surface area)
9 in/yr
0.31 ac/ft
5612 gallons/yr (five month period, high estimate)

Spring and Seeps Effects From Subsidence - Not Applicable

Alluvial Aquifer Abstractions into Mines - Not Applicable

Alluvial Well Pumpage - Not Applicable

Deep Aquifer Pumpage - Not Applicable

Postmining Inflow to Workings - Not Applicable

Direct Diversions: - Not Applicable

Dust Suppression - 3,500 gallons per truck load, 3 loads per day, for 30 days = 315,000 gallons plus
3,000 per truck load, 1.25 loads per day, for 45 days = 168,750. Total: 483,750 gallons per year.

Mine Discharge: 6 Month Average 362,118 gpd = 132,172,948 gal/yr

Calculation estimates for water use in 2004 were necessary since we are using 2004 purchases and usage and the year is 2 months short.

Pace Canyon

"In accordance with the United States Fish and Wildlife Service's (USFWS) protocols, and inventory for the presence of threatened, endangered, and sensitive fauna and floral species was conducted on August 13, 14, and September 29, 2003. Loggerhead, shrike, burrowing owl, Northern Goshawk, Despain foot cactus, Wright fishhook cactus and Creutzfeldt cryptantha and neo-tropical migratory birds were the sensitive species of concern within the area. A thorough search of all seven well sites and associated access roads did not reveal the presence of these species (BLM, Environmental Assessment, UT-070-2003-55)." A map of the area inventoried is provided in Appendix 3-4 within the referenced environmental assessment, it should be noted that the area covered by the aforementioned environmental assessment is the same area proposed for the construction of the Pace Canyon fan facilities. In addition a sensitive plant species survey was conducted by Mt. Nebo in August 2003. To initiate the study, appropriate agencies were consulted (e.g. Utah Natural Heritage Program) and other sources were reviewed for potential plant species that are known to be rare, endemic, threatened, endangered or otherwise sensitive in the area of study. The only plant identified was canyon sweetvetch. No rare, endemic, threatened, endangered or otherwise sensitive species were found in the area proposed for disturbance.

Lease Modification U-07064-027821

Tony Wright and Leroy Mead of the Division of Wildlife Resources (DWR) were contacted on January 19, 2007 to determine the potential for threatened or endangered wildlife species to be present within the proposed lease modification area (NW1/4NW1/4 Section 21, Township 13S, Range W13 East). Tony Wright reviewed an aerial photograph of the area on January 19th and Leroy Mead had visited the area in November 2006. Mr. Wright said there was potential for goshawks (species of concern for the DWR) to be in the general area describing their habitat as mature ponderosa pines or stands of mature firs. The 40 acre modification has a stand of mature firs which was identified by Mr. Wright as potential habitat for goshawks. Mr. Wright recommended a goshawk survey be done if surface disturbance is planned for the mature stand of firs in W1/2NW1/4NW1/4 of Section 21. Mr. Wright also identified a potential mature stand of firs in N1/2NE1/4 of Section 17.

No threatened or endangered wildlife species were identified as being in the area by either Mr. Wright or Mr. Mead. Mr. Wright consulted several sources before determining the lack of threatened

and endangered species in the area. Mr. Wright inquired if there were any large ponds of water that would be impacted by disturbance within the lease modification area, the permittee is unaware of any large ponds within the propose lease modification area.

Patrick Collins of Mt. Nebo Scientific was contacted on January 19, 2007 to determine if threatened or endangered plant species were known to be present within the proposed lease modification area. Mr. Collins visited the lease modification area in November 2006, at the time no threatened or endangered plant species were located. Appropriate agencies were consulted (e.g. Utah Natural Heritage Program) and other sources were reviewed for potential plant species that are know to be rare, endemic, threatened, endangered or otherwise sensitive in the lease modification area. A description of the research performed by Mt. Nebo Scientific and the conclusions are included in Appendix 3-1

Habitats of Unusually High Value. High value habitats in Dugout Canyon include the riparian area and the cliff escarpments. Major portions of established habitat will not be disturbed, but the restricted access by wildlife to the water source within the area of disturbance could displace wildlife. The cliff areas adjacent to the disturbed area could harbor mountain lion, bobcat and bear; and with increased activity and noise they may avoid the area. Elk and deer who may frequent Dugout Canyon will likely avoid the area during the heaviest of activity, but resume their normal patterns once they become accustomed to it.

In a letter dated April 22, 1996 to James W. Carter the director of UDOGM, Robert G. Valentine director of the UDWR makes the following comment "much of the area is classified as critical deer winter range and is heavily used by deer and occasionally by elk and antelope". Use classification drawings of the Dugout Canyon area for large mammals (deer, elk, antelope, etc.) were requested from the UDWR in January of 1996 by SCM. The cover letter dated January 30, 1996 from the UDWR and the drawings are included in Appendix 3-3 for interpretation by UDOGM. SCM has interpreted and transferred the information (provided by UDWR) to Plate 3-2. The use classifications were extended on Plate 3-2 with the incorporation of Federal Lease U-07064-027821.

A survey for bats was performed by Mark Perkins in September of 1997. A report of this survey is included in Appendix 3-3 with a figure showing the bat survey locations.

No data or definition was available to determine the criteria for an area to be classified as of "unusually high value" for bats. However, since extensive rock faces, cliffs, and escarpments are present throughout the Book Cliffs Region, the land within the permit boundary is not unusual or unique to the area. The Castlegate Sandstone, Blackhawk, and Price River are the cliff forming formations present in the Dugout Canyon area. Refer to Chapter 6 for descriptions of these formations and Plate 3-3 for their locations.

In the Perkins-Dugout Mine Bat Survey the following statement was made "development plans for the proposed disturbance area contains some mitigation for resident bat species. A proposed runoff pond will likely provide accessible year round water and an associated bio-mass. Presently Dugout Creek is not classified as a perennial stream. In addition, plans include several outdoor flood lights which may act as an attractant for phototropic insects and provide a concentrated and stable food resource for local bat populations. Due to no cliff subsidence and mitigating actions noted above, it is our opinion that excepting the disturbance to and removal of 2,000 ft. of riparian zone, impact (either positive or negative) on local bat populations is minimal".

Raptor and Bat Survey

Raptor nest surveys will be conducted annually in the Spring prior to mining activities or potential subsidence within the permit area and in proposed expansion areas to the permit to obtain base line data. In addition, raptor nest locations will be monitored/surveyed the year following the first monitoring/survey if nests were observed during the survey and if operations result in subsidence. The permittee will contact the Division prior to any raptor nest protection efforts.

A bat survey for Utah sensitive bat species is planned for 2005 (May thru September), this survey will cover the cliff areas adjacent to a proposed fan breakout in Pace Canyon. Baseline bat surveys of Utah sensitive bat species will be conducted between May and September in riparian habitat expected to be impacted by subsidence. In addition, Utah sensitive bat species will be monitored/surveyed the year following the first monitoring/survey if Utah sensitive bat species were observed during the survey and if mining operations result in subsidence impact to the riparian habitat.

40 Acres - Federal Coal Lease U-07064-027821

The 40 acres was included in the 2006 raptor survey performed by the DWR and will continue to be included on an annual basis until mining in the area is discontinued.

Tony Wright of DWR and Jerriann Ernstsens of UDOGM had a conversation on March 6, 2007, per a message from Ms. Ernstsens left on the phone of Vicky Miller, Dugout Canyon Mine's Environmental Engineer. According to Ms. Ernstsens, the conversation concerned bat habitat on the 40 acres described as NW1/4NW1/4 Section 21, Township 13S, Range 13 East. Mr. Wright stated in the conversation between himself and Ms. Ernstsens that he was not concerned with the loss or impact to bat habitat in the area described except for the loss of a water source, a spring in the NE1/4NE1/4NW1/4 of Section 21, T13S, R13E. The spring (groundwater monitoring location 259A (Plate 7-1), added in 2007 in conjunction with the 40 acre permit area expansion, Task ID #2743) is located over an area where minimal subsidence is anticipated. To the best of the permittee's knowledge and understanding the 40 acre permit area expansion does not require a bat survey.

During June of 2005 the bat survey performed by JBR consultants, Pace Creek was surveyed. Site/stop #7 was in the S1/2SW1/4 of Section 21, Appendix 3-3 of M&RP, Figure 1, this stop was the closest to the proposed 40 acres. In the summary of the report it states "the nearly constant bat activity at the Stop #7 pond suggests that this water feature is an important resource for bats in terms of both water and feeding." The pond will not be effected by the mining proposed in the NW1/4NW1/4 Section 21, Township 13S, Range 13 East, (40 Acre addition to Federal Coal Lease U-07064-027821), but according to the JBR consultants is likely the water source used by the bats in the area.

Replacement

Since water and its corresponding vegetation are important throughout the state of Utah, regulatory agencies have been requiring mitigation for disturbance and eventual replacement from the coal industry. SCM will comply with the requirements of mitigation and eventual replacement of the resources which may be lost or disturbed during this mining operation, refer to Sections 331, 340, 350, and 762.100.

As a mitigation effort SCM replanted 7,500 feet of disturbed riparian streambank above the northern disturbed area boundary with a modified version of Seed Mix No. 1 (mitigation seed mix), to assist in restoring vegetation which has been disturbed by the logging industry.

Mitigation Seed Mix (Hydroseed/Broadcast Quantities)

<u>SPECIES</u>	<u># pls/acre</u>
Bluebunch wheatgrass	5.0
Intermediate wheatgrass	5.0
Slender wheatgrass	5.0
Smooth brome	5.0
Indian ricegrass	3.0
Blueleaf aster	1.0
Blue flax	1.5
Northern sweetvetch	1.5
Mountain big sagebrush	1.0
TOTAL	28.0

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
March 7, 2007

APPENDIX 3-1

Vegetation Data

Add to the back of the existing information



MT NEBO SCIENTIFIC, INC.

research & consulting

January 27, 2007

Vicky Miller
CANYON FUEL COMPANY, LLC.
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

RE: T&E Plant Species

Dear Vicky:

In response to your questions as to the likelihood of threatened or endangered plant species occurring in a specific 40-acre area near Pace Canyon (Section 21, T13S, R13E), please note the following comments:

- I have *not* surveyed the entire 40-acre area for T&E species during the growing season.
- I have visited the proposed drill site that is located within the 40-acre area on November 11, 2006 to get an idea of the habitat for the proposed drill site (G-20).
- I have reviewed the project area using recent aerial photographs at a scale of 1":200'.
- I have reviewed the files that I keep at *Mt. Nebo Scientific, Inc.* related to threatened, endangered, rare, and sensitive species.
- I have reviewed the most recent Utah Natural Heritage Program (UNHP) database for threatened, endangered, and sensitive species in the area.
- I have reviewed several previous reports that I have written in the immediate area that included T&E surveys.

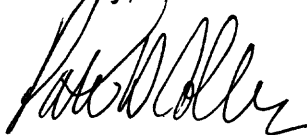
Relying on the above statements for my findings, I find it very unlikely that any threatened, endangered, rare, or otherwise sensitive plant species would occur in the project area.

The single plant species that could possibly occur in the area (also unlikely) would be canyon sweet vetch (*Hedysarum occidentale* var. *canone*). This species is listed as "sensitive" by the USDA Forest Service.

I understand that, except for the area near the proposed de-gasification well numbered G-20, the 40-acre parcel will have *no surface disturbance*. This, of course, strongly decreases the chance of any impacts to any plant species in the area.

I hope this information is helpful. Please call me if you have questions or comments. I would be happy to discuss this issue with the specialists at the State of Utah, Division of Oil, Gas & Mining.

Sincerely,



Patrick D. Collins, Ph.D.
Biologist

CHAPTER 4

LAND USE AND AIR QUALITY

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CHAPTER 4

LAND USE AND AIR QUALITY

410 LAND USE

This section of the permit application includes descriptions of the premining and proposed postmining land use(s). Additional information can be found in the following amendments: Methane Degassification Amendment (August 2003), Refuse Pile Amendment (February 2003), and the Leachfield Addendum A-1 (March 2001). The remainder of the State Lease ML-48435-OBA (SITLA Lease) was incorporated into the Dugout Canyon Mine permit area in 2004. In 2007, 40 acres was added to Federal Coal Lease U-07064-027821 to accommodate a revised mine plan. Refer to Plate 1-2 and 4-1 for the location of the acreage incorporated into the permit boundary. Surface disturbance will be permitted as needed to facilitate mining activities.

411 Environmental Description

A statement of the conditions and capabilities of the land to be affected by coal mining and reclamation operations follows in this section.

411.100 Premining Land Use

The permit area has been primarily utilized as rangeland for livestock and wildlife habitat. Some crops related to the livestock industry have been developed along the creek bottoms adjacent to Soldier Creek Road. However, no crops have been raised within the permit area. Recreational use of the permit area is limited due to lack of access through private property.

The predisturbed area boundary outlined on Plate 5-4 reflects disturbance prior to 1965. The boundary was compiled from a 1980 map of the pre-mining topography prepared by Eureka Energy Company. According to historical data the Dugout Canyon area was last mined in 1964.

Pace Canyon

Archaeological inventories in the area were completed in 1980 by AERC who surveyed the access road into Pace Canyon to the Snow Mine site which is the currently proposed location of the fan site facility. The proposed fan site does not encompass the mine itself, but merely the facility area associated with the Snow Mine. The Snow Mine (42CB292) facility was active in 1906 but had its primary production period from 1932 - 1940. When inventoried the site was in moderately fair condition and avoidance was recommended in the 1980 inventory, however the site was **not** recommended for nomination to the National Register of Historic Places (Hauck & Weder: 1980). During an inventory by Senco-Phenix in 2001 the BLM requested a second evaluation of the Snow Mine site utilizing current National Register of Historic Places (NRHP) criteria. Senco-Phenix recommendation was "the area has been heavily logged since the initial recordation and the area around the mine extensively disturbed by heavy equipment, probably dozed. The foundation has been destroyed and the coal loadout has been collapsed and pushed into the bed of Pace Creek. The rock-covered adit and adjacent stonewall are still there on the other side of Pace Creek (east).....Other than recent trash no artifacts were observed. The integrity of the site has been basically destroyed. The site is not recommended for the NRHP" (Senulis: 2001). The 2001 evaluation also stated "no historic properties will be affected and no further cultural resource inventory is necessary".

In October 2003, Senco-Phenix performed an additional survey of the Snow Mine area in conjunction with a exploration drilling project proposed and approved by the BLM in 2003. The surveys mentioned in this section are on file with the BLM an/or in the Confidential Binder.

411.110 Land Use Map

Plate 4-1 designates the prominent land uses within and adjacent to the permit boundary. Pace Canyon has a corral just above a locked gate in Section 25, Township 13 South Range 12 East (Plate 4-1). The main livestock watering source is Pace Creek and it's tributaries in Sections 19, 20, 21 and

22, Township 13 South Range 13 East (Plate 4-1) and the Clark's Valley Reservoir, approximately 3 miles southwest of the Pace Fan Portal site (outside of area covered by Plate 4-1).

411.120 Land Capability

The area surrounding Dugout Canyon supports a variety of land uses including industrial, agricultural, and recreational. Carbon County has zoned the permit area for mining and grazing.

Energy resource development occurs throughout the region in the form of coal mining, oil and gas production and tar sands development. A methane gas recovery operation was formerly running in conjunction with the Soldier Canyon Mine which lies west of the Dugout Canyon Mine permit boundary. The Soldier Canyon Mine has been in operation since 1976.

The major plant communities in the Dugout Canyon lease area are identified in Section 321. No cultivated lands lie within the permit boundary, due to the limiting terrain and lack of water for irrigation. Refer to Section 321.100 for forage production per acre.

The permit area is used for grazing cattle, but sheep have grazed in the area previously. Valley bottoms receive little grazing due to their limited forage and narrowness except in the vicinity of water sources. Steep slopes receive limited grazing pressure from livestock because of the steep inclines and the lack of water. Flatter mesa tops and rolling terrain receive heavier pressure because of easier movement by livestock and more available forage. Grasses are preferred forage for cattle; however, cattle will eat forbs and shrub species.

The use of land for grazing is dictated by the condition of and access to the specific areas. At the land owners discretion land may be used for grazing one year and not used again for five years. However, grazing should continue to be considered a potential land use for the permit and adjacent areas.

The permit area supports limited recreation due to inaccessibility to privately owned lands.

411.130 Land Use Description

The permit area lies within undeveloped lands used primarily as wildlife habitat and for livestock grazing. Five grazing allotments are located in or adjacent to the permit area (Plate 4-1). The allotments support 429 head of cattle from May through October. The grazing allotments as listed below are administered by the U. S. Bureau of Land Management (BLM): Pine Canyon Allotment No. 24089 supports 50 head of livestock, Dugout Allotment No. 34039 supports 60 head, Pole Canyon Grazing Allotment No. 34092 supports 144 head, Cow Canyon Allotment No. 34032 supports 95 head, and Pace Canyon Allotment No. 24085 supports 80 head of livestock. The grazing allotment within the vicinity of the fan portal facilities is the Pace Canyon Allotment No. 24085, both the existing road and proposed facility site occur within this allotment. The existing Pace Canyon road passes near the main watering sources and holding corral for livestock on this allotment.

Recreation in the permit and adjacent areas includes camping, hunting, and hiking from Spring to late Fall. Recreational use is light due to restricted access to privately-owned lands. There are no developed or inventoried recreation campgrounds within the permit boundary. No impact is expected to the current recreational uses of the area. SCM will preserve these uses into the postmining period.

During deer and elk hunting seasons, the accessible lands are used extensively by the public. Fishing is limited at best, with restricted access and no known game fish populations existing in the permit area streams.

Logging operations completed in 1996 by Cascade Resources within and adjacent to the permit boundary are shown on the Sale Area Map "Exhibit A" in Appendix 4-2. Exhibit A was prepared by Cascade Resources of Wellington, Utah who estimated harvesting six million board feet from the areas designated on the exhibit. Their logging contract expired on 12/31/96.

Timber within the disturbed area is very limited and therefore not economical for recovery by the logging industry. Exhibit B included in Appendix 4-2 shows SCM's timber inventory including areas logged and areas yet to be logged.

The nearest crop production (alfalfa) is approximately 4 miles southwest of the permit boundary adjacent to the Soldier Creek Road. Cultivation occurs on a year to year basis, depending upon the water available for irrigation.

411.140 Cultural and Historic Resources Information

Cultural resource information and maps identifying cultural and historical study areas are located within the confidential folder of information pertaining to this permit. An intensive cultural resource evaluation of the permit area has been conducted by Dr. Richard Hauck, Ph.D. of Archeological-Environmental Research Corporation (AERC). As part of this evaluation he also made a record search at the State Historic Preservation Office (SHPO) and the National Register of Historic Places (NRHP).

Cultural resource evaluations were performed on two sites within the permit boundary. Field evaluations on the historic Dugout Creek Mine (42CB 205/291) and on a prehistoric rock art site (42CB 92) were conducted by the AERC staff on November 20 - 22, 1995. Site 42CB 92, situated in the SE1/4 of Section 22, T13S, R12E, contains a series of pictograph panels first documented by Dale Berge in 1977. The historic Dugout Creek Mine locus is situated in the NW1/4 of Section 23.

The historic components of the Dugout Creek Mine (42CB 205/291) are not considered to be significant and do not need to be avoided or mitigated prior to the development of the mine site. The prehistoric rock art site (42CB 92) is a significant resource and is eligible for nomination to the NRHP. Site 42CB 92 has been reported to the NRHP and BLM offices during previous cultural and historical studies of the area in 1977, 1980, and 1995 but is not currently listed on the NRHP.

The rock art panels are unstable and could be destroyed if blasting for road expansion is done within a 600-foot radius of the panels. SCM will make every effort to protect these rock art panels without drawing unnecessary attention to their location. The panels have been preserved primarily because the general public does not know of their existence. SCM will strive to maintain this condition.

The AERC report provides descriptive and valuational information for the two sites.

Cultural and historical inventories associated with the SITLA lease tract and adjacent areas are located in Appendix 4-1 and 4-3. This information should be held confidential by the Division.

The information in Appendix 4-3 was collected starting in 1980 and the last report was completed in 2003. According to information collected from the Price office of the BLM on March 23, 2004 and conversations with Mr. David Miller, there were no sites with artifacts considered for registration found in the areas surveyed and reported in 1980 through 1991. The conclusions were the same in the surveys conducted in 2001 - 2003. A letter from John Senulis, Archeologist with Senco Phenix detailing their file search and surveys of the area has been incorporated into Appendix 4-3. The letter is addressed to Kenny Wintch, the SITLA Archeologist and a copy has been sent to Mr. Dykman at SHPO. The letter states "No sites eligible for nomination to the National Register of Historic Places have been found in or adjacent to the permit expansion area. It is very unlikely that future survey will reveal sites eligible.....Furthermore all activity will be underground with no surface disturbance. For these reasons a finding of "no effect on historic properties" is appropriate and archeologic clearance without stipulations is recommended."

Federal Lease Modification U-07064-027821

Senco-Phenix (Archeological Consulting Services) conducted a Class 1 file search for the NW1/4NW1/4, Section 21, Township 13S, Range 13E (approximately 40 acres). The 40 acres has privately owned surface and federal coal.

The Class 1 file search results listed a survey in 2006 conducted by Senco-Phenix which included a walking survey of a portion of the NW1/4NW1/4, Section 21, Township13S Range 13East. The survey area and a road surveyed in 2005 are shown on a drawing attached to a letter addressed to Vicky Miller, dated January 23, 2007 from Senco-Phenix. Copies of the letter and drawing have been provided to the Division for inclusion into Appendix 4-1 of the confidential folder as has a copy of the walking survey listed in the letter. **No cultural resources** were located during either of the surveys located by the file search, listed in the aforementioned letter.

Cultural and Historic Resource Maps. Maps and photographs for the evaluated cultural and historical sites are contained in the confidential folder.

There are no cemeteries, public parks, or units of the National System of Trails or the Wild and Scenic Rivers System located within the Dugout Canyon Mine permit boundary. The National Register of Historic Places was consulted by AERC and no registered historic or prehistoric properties will be affected by the proposed mine development.

SCM agrees to notify the Division and SHPO of previously unidentified cultural resources discovered in the course of mining operations. Arch Coal Company has a registered professional geologist on staff assigned to Dugout Canyon Mine available to confirm vertebrate fossil material discovered during earth moving activities during construction of the Pace Canyon Fan Portal site. SCM also agrees to have any such cultural resources evaluated in terms of NRHP eligibility criteria. Protection of eligible cultural resources will be in accordance with Division and SHPO requirements. SCM will also instruct its employees that it is a violation of federal and state laws to collect individual artifacts or to otherwise disturb cultural resources.

Coordination with State Historic Preservation Officer. AERC contacted SHPO concerning the Dugout Canyon Mine site and a copy of their report was forwarded to SHPO. The National Register of Historic Places was consulted by AERC and no registered historic or prehistoric properties will be affected by the proposed mine development.

411.200 Previous Mining Activity

Coal mining has occurred within Dugout Canyon since 1925. D. J. Collins prospected for and initially hand-developed the Red Glow Mine in the Gilson seam on the east side of Dugout Canyon in 1925. The west side of Dugout Canyon was first mined in 1952 by E.S.O. Coal Company when they mined the Rock Canyon seam.

The Knight Ideal Coal Company mined the Rock Canyon and Gilson coal seams located on both sides of the canyon between 1958 and 1964. Knight Ideal Coal Company extracted 1,326,000 tons of coal by conventional room and pillar method with partial pillar recovery. The area in Dugout Canyon disturbed by mining has changed hands through the years but no coal has been extracted since 1964.

Limited exploration within existing portals was conducted by Pacific Gas and Electric in 1979 and by Sunedco in 1982. Following each exploration, the portals were resealed with earthen fill. During 1995, SCM reopened four portals, two on the east and two on the west side of Dugout Canyon. The portals on the east side were resealed but the portals on the west side were left open and fenced for security and safety.

Remnants of the Fish Creek and Pace Canyon Mine which operated in the early 1900's also exist within the permit boundary. Both mine sites have been considered for preservation by SHPO but were ineligible for nomination to the National Register of Historic Places. Pace Canyon contains the remains of earlier mining, disturbance by logging activities, and road access disturbance. The area was neither reclaimed or revegetated following the aforementioned disturbance.

412 Reclamation Plan

412.100 Postmining Land Use Plan

All uses of the land prior to mining and the capability of the land to support prior alternate uses will remain available throughout the life of the mine except within the disturbed-area boundary.

SCM intends the postmining land use to be consistent with the present land use, which is livestock grazing and wildlife habitat. Final reclamation activities such as grading and seeding as detailed within this M&RP will be completed in a manner to provide lands able to parallel the premining land use. In areas where surface disturbance will result from mining operations, soil reclamation and revegetation will restore the areas to wildlife habitat and livestock grazing capabilities.

The activities associated with the mining operation will follow accepted standards or proven techniques. Erosion hazards will be minimized and, where possible, eliminated. Evidence of abandoned improvements will be removed. Reclamation will restore the land and vegetation to as near a natural and productive condition as possible.

Efforts to restore wildlife habitat are discussed in Chapter 3 of this M&RP. Specific periods of habitation by wildlife species of the disturbed and adjacent area are discussed in Appendices 3-2 and 3-3. Since the disturbed area is privately owned the timing and extent of use for grazing will be made after reclamation by the landowner.

412.200 Land Owner or Surface Manager Comments

The land surface within the permit boundary is owned by various entities, including the State of Utah and Canyon Fuel Company, LLC (CFC). The disturbed area is on surface lands owned by both CFC, BLM and the State.

The leases contained in Appendix 1-1 list responsibilities accepted by CFC in regard to the State of Utah's lands within the permit boundary. The leases contain requirements concerning use and maintenance of their administered lands. CFC is obligated by these leases to notify the Division for their determination as to whether this mining operation will be detrimental to the State of Utah's interest. By submitting this M&RP, CFC is indicating that the operation will not be detrimental to the State's interests and the obligation is being met. A letter of affirmation from the State of Utah concerning proposed land use is included in Appendix 4- 2.

The Bureau of Land Management (BLM) Right-of-Way application (UTU-76601) in Appendix 1-3 lists the responsibilities accepted by CFC concerning the BLM lands included in the permit boundary. A letter from the BLM concerning proposed land use for Pace Canyon Fan Portal area and UTU-76601 will be included in Appendix 4-2.

Refer to Chapter 1 for responsibilities CFC accepts in association with Federal Lease U-07064-027821.

For clarification as to relationship of SCM to CFC, refer to Section 112.

412.300 Suitability and Capability

Final fills will not contain excess spoils.

413 Performance Standards

The performance standards for the areas to be reclaimed for postmining land use are contained in this section.

413.100 Postmining Land Use

Postmining land uses are discussed in Section 412.100. The postmining lands will be reclaimed in a timely manner and capable of supporting such land uses (see Chapters 2, 3, 5, and 7). The postmining roads are discussed in Section 542.600.

413.200 Determining Premining Uses of Land

Postmining land uses will be as stated in Section 412.

413.300 Criteria for Alternative Postmining Land Uses

No alternative postmining land uses have been planned.

414 Alternative Land Use

No alternative postmining land uses have been planned.

420 AIR QUALITY

This section includes descriptions of plans to comply with the Clean Air Act and applicable Utah or federal statutes and regulations pertaining to air quality standards.

Dugout Canyon Mine (called the Sage Point-Dugout Canyon Mine under previous ownership by Eureka Energy Company) was granted a PSD permit by EPA on December 17, 1979. On February 12, 1982 the EPA approved air quality regulations adopted by the State of Utah. Subsequently, an Approval Order (AO) was issued on September 28, 1983 by the Utah Air Conservation Committee for the Sage Point-Dugout Canyon Mine. However the planned mining operations were never implemented.

Information collected for the PSD and the 1983 AO have been submitted to the Utah Division of Air Quality in a request for an amended approval order. This amendment was requested because of a change in surface equipment and a decrease in proposed coal removal from 5.2 million tons to 2 million tons per year.

421 Air Quality Standards

Dugout Canyon's mining activities will be conducted in compliance with the requirements of the Federal Clean Air Act and the Utah Air Conservation Rules.

422 Compliance Efforts

No mining activities will be conducted without a current AO from the Utah Division of Air Quality (DAQ). All activity will be conducted in compliance with the conditions established in the AO. A Notice of Intent (NOI) to construct has been submitted in accordance with DAQ document "Preparing Your Notice of Intent". Preconstruction conferences will be held as required by DAQ personnel. Emissions will be estimated using procedures and factors supplied by DAQ. A copy of the Approval Order and supporting information can be found in Appendix 4-1.

423 Monitoring Program

An NOI was submitted to DAQ requesting approval for a production rate of 7 million tons per year. This rate exceeds immediate production plans, but approval at this level will preclude the necessity of reapplying if future production plans should increase. This approach is appropriate since an AO is subject to specific operating conditions rather than to a time period and thus does not expire at the end of a 5-year period as does the approval of the mining permit. If operating conditions change sufficiently to invalidate the AO, a new NOI will be prepared.

The operating conditions are specified in the NOI and form the basis of the AO. All monitoring requirements and fugitive dust control practices as established by the AO will be followed by SCM.

Should additional requirements be established under the provisions of R645-301-244.100 or R645-301-244.300, these requirements will also be followed by SCM.

424 Fugitive Control Plan for Production Rates Less than One Million Tons Per Year

During startup, or other situations where production is less than one million tons per year, the same procedures established in Section 423 will be followed and will be subject to the conditions of the AO issues by DAQ. See Section 523 of this M&RP for coal extraction estimates for the first 5 years of mining.

425 Additional Division Requirements

Should an air quality monitoring program be required by the Division while operating at a production rate of less than one million tons per year, SCM will provide sufficient data to judge the effectiveness of the fugitive dust control plan.

REFERENCES:

Berge, D. L., 1976. The archaeological potential of the sage point coal mine, surface facilities and railroad spur, central Utah.

Division of Air Quality, 1994. Preparing Your Notice of Intent, Fifth Edition.

Hauck, F.R. and Dennis G. Weder, 1980. Intensive archeological surface evaluations of the proposed Sage Point-Dugout Canyon project in Carbon County, UT. Archeological Environmental Research Corporation paper No. 19. Salt lake city, UT.

Julander, O. 1955. Deer and cattle range relations in Utah. Forest Science 1 (2):130-139.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
March 7, 2007

APPENDIX 4-1

Air Quality Approval Order and Information



State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

REC'D OCT 28 2005

DAQE-AN1634005-05

October 21, 2005

Vicky S. Miller
Canyon Fuel Company LLC
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542

Dear Ms. Miller:

Re: Approval Order: Modification of Approval Order DAQE# AN1634004-03 to Add Two Backup Generators and One Diesel Engine, Carbon County – CDS B; ATT; NSPS, HAPs, TITLE V Minor Project Code: N1634-005

The attached document is the Approval Order (AO) for the above-referenced project.

Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any technical questions you may have on this project to Mr. Maung Maung. He may be reached at (801) 536-4153.

Sincerely,

Richard W. Sprott, Executive Secretary
Utah Air Quality Board

RWS:MM:re

cc: Southeastern Utah District Health Department

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

**APPROVAL ORDER: Modification of Approval Order
DAQE# AN1634004-03 by Adding Two Backup Generators and
One Diesel Engine & Extend Hours**

**Prepared By: Maung Maung, Engineer
(801) 536-4153
Email: mmaung@utah.gov**

APPROVAL ORDER NUMBER

DAQE-AN1634005-05

Date: October 21, 2005

Canyon Fuel Company LLC

**Source Contact
Vicky Miller
(435) 636-2869**

**Richard W. Sprott
Executive Secretary
Utah Air Quality Board**

Abstract

Canyon Fuel Company has proposed to add two diesel electric generators and one diesel engine to its coal mine to serve as backups. It also proposes to extend operational hours from 6120 hours to 7300 hours per rolling 12 months total. The emissions increases will result from diesel engines operations, maintenance, and tests for readiness. The annual production limit of coal will remain the same at five millions tons per year. The mine is located in Carbon County, near the city of Price, Utah.

Carbon County is an attainment area of the National Ambient Air Quality Standards (NAAQS) for all pollutants. This source is subject to New Source Performance Standards (NSPS) under 40 CFR Part 60 Subpart OOO- Standards of Performance for Nonmetallic Mineral Processing Plants. National Emission Standards for Hazardous Air Pollutants (NESHAP) and Maximum Available Control Technology (MACT) regulations do not apply to this source. Because this source is a NSPS source, it also falls under the 40 CFR Part 70 or CAA Title V regulations.

The emissions, in tons per year, will change as follows: $PM_{10} = + 0.32$, $NO_x = + 10.88$, $SO_2 = + .19$, $CO = + 2.50$, $VOC = + 0.32$, $HAPs$ (aldehydes from diesel engines) = + 0.22.

The changes in emissions will result in the following, in tons per year, potential to emit totals: $PM_{10} = 7.62$, $NO_x = 13.88$, $SO_2 = 5.15$, $CO = 5.25$, $VOC = 0.32$, $HAPs$ (aldehydes from diesel engines) = 0.22.

The project has been evaluated and found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). A public comment period was held in accordance with UAC R307-401-4 and no comments were received. This air quality Approval Order (AO) authorizes the project with the following conditions, and failure to comply with any of the conditions may constitute a violation of this order.

General Conditions:

1. This Approval Order (AO) applies to the following company:

Site Office

Canyon Fuel Company, LLC
Dugout Canyon Mine

Wellington, Utah 84542

Phone Number (435) 637-6360

Fax Number (435) 636-2897

Corporate Office Location

Canyon Fuel Company, LLC
225 North 5th Street
Suite 900
Grand Junction, CO 81501

The equipment listed in this AO shall be operated at the following location:

Directions: East of Price in Carbon County. Proceed east 3 miles from Wellington, turn left up State highway 53 for approximately 4.8 miles to the Dugout Canyon turn-off. The mine is located approximately 8.7 miles up the Dugout Canyon road.

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27
4,390.665 kilometers Northing, 535.742 kilometers Easting, Zone 12

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the Utah Administrative Code (UAC) Rule 307 (R307) and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.
3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.
4. Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved in accordance with R307-401-1.
5. All records referenced in this AO or in applicable NSPS which are required to be kept by the owner/operator shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the two-year period prior to the date of the request. Records shall be kept for the following minimum periods:
 - A. Emission inventories Five years from the due date of each emission statement or until the next inventory is due, whichever is longer.
 - B. All other records Two years
6. This AO shall replace the AO (DAQE-AN1634004-03) dated July 9, 2003.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
March 7, 2007

APPENDIX 4-4

Miscellaneous Land Use

March 2, 2007

Ms. Vicky Miller
Dugout Canyon Mine
P. O. Box 1029
Wellington, Utah 84542

Dear Ms. Miller:

I grant the right to use existing roads on lands belonging to me for survey conducted by Dugout Canyon Mine.

I also authorized right-of-way entry to access water monitoring location on or through lands belonging to me. If existing roads do not allow access to water monitoring sites, foot travel is required.

Sincerely,

A handwritten signature in cursive script, reading "Gil L. Conover". The signature is written in dark ink and is positioned above the printed name.

Gil L. Conover

CHAPTER 5
ENGINEERING

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CHAPTER 5

ENGINEERING

510 INTRODUCTION

This chapter provides a discussion of general engineering aspects, an operation plan, a reclamation plan, design criteria, and performance standards related to the Dugout Canyon Mine. The proposed coal mining and reclamation activities associated with the mine have been or will be designed, located, constructed, maintained, and reclaimed in accordance with the operation and reclamation plans.

Additional information can be found in the following amendments: Methane Degassification Amendment (August 2003), Refuse Pile Amendment (February 2003), and the Leachfield Addendum A-1 (March 2001). The remainder of the State Lease ML-48435-OBA (SITLA Lease) was incorporated into the Dugout Canyon Mine permit area in 2005. In 2007, 40 acres was added to Federal Coal Lease U-07064-027821 to accommodate a revised mine plan. Refer to Plate 5-7 for the location of the acreage (NW1/4NW1/4, Section 21, Township13S, Range 13E) incorporated into the permit boundary. Surface disturbance will be permitted as needed to facilitate mining activities.

511 General Requirements

This permit application includes descriptions of the proposed coal mining and reclamation operations together with the appropriate maps, plans, and cross sections. Potential environmental impacts as well as methods and calculations utilized to achieve compliance with the design criteria are also presented.

512 Certification

Where required by the regulations, cross sections and maps in this permit application have been prepared by or under the direction of, and certified by, qualified registered professional engineers or land surveyors. As appropriate, these persons were assisted by experts in the fields of hydrology, geology, biology, etc.

525.200 Subsidence Control

Adopted Control Measures. SCM has adopted a mining technology which provides for planned subsidence in a predictable and controlled manner. As planned, this subsidence will be uniform, thus minimizing impacts to surface resources.

Compliance With Control Plan. SCM will comply with all provisions of the approved subsidence control plan.

Correction of Material Damage. No material damage of surface resources is anticipated as a result of subsidence in the permit area. However, should material damage occur, SCM will correct any material damage resulting from subsidence caused to surface lands to the extent technologically and economically feasible by restoring the land to a condition capable of maintaining the value and reasonably foreseeable uses which it was capable of supporting before the subsidence. In addition, SCM will notify the Division of any slide, rock fall, or other disturbance known to be caused by subsidence that will have an adverse effect on the environment.

Protection of Significant Surface Resources. None of the following exist within the area of potential subsidence associated with the Dugout Canyon Mine:

- Public buildings or facilities,
- Churches, schools, and hospitals,
- Impoundments with a storage capacity of 20 acre-feet or more or bodies of water with a volume of 20 acre-feet or more,
- Aquifers or bodies of water that serve as a significant water source for any public water supply system, or
- Urbanized areas, cities, towns, or communities,
- Non-commercial buildings or occupied (human) structures.

Hence, no special control measures are required to preclude subsidence impacts to these resources. Refer to Appendix 5-11 for additional discussion of subsidence.

maintained by SCM as required to permit access for environmental monitoring and subsidence surveying. Roads on land not owned by Canyon Fuel Company, LLC will be maintained by SCM if a maintenance agreement is reached with the landowners. Trespass on private roads will take place only with landowners permission.

528 Handling and Disposal of Coal, Excess Spoil, and Coal Mine Waste

528.100 Coal Handling and Transportation

Coal will be removed from the underground workings using the mining methods and conveyor system described in Section 523. A material flow diagram for the surface at the mine portal is provided in Figure 5-2 (See Appendix 5-12).

Run-of-mine coal will be brought out of the mine by conveyor belt to a transfer bin. From the transfer bin, the coal will be fed to the coal storage pile, from which it will be conveyed via a reclaim tunnel to the crusher and then via the loadout conveyor to the truck loadout bin. From the bin, the coal will be loaded onto trucks and transported from the site.

528.200 Overburden

No overburden will be removed, handled, stored, or transported within the permit area.

528.300 Spoil, Coal Processing Waste, Non-Coal Waste, and Mine Development Waste

Excess Spoil. No spoil will be generated at the Dugout Canyon Mine. Sediment removed from the sedimentation pond will be handled in accordance with Section 732.200 of this M&RP.

Coal Processing Waste. SCM will not process their coal at the Dugout Canyon Mine beyond crushing. Thus, no coal processing waste will be generated in the permit area.

533.500 Highwalls

No highwalls will be located below the water lines of the sedimentation pond.

533.600 MSHA Criteria

The sedimentation pond does not meet the size criteria of 30 CFR 216(a).

533.700 Pond Operation and Maintenance Plans

The sedimentation pond has been designed in accordance with R645-301-740. Details of these designs, and the requirements for operation and maintenance of the pond, are presented in Chapter 7 of this M&RP.

534 Roads

534.100 Location, Design, Construction, Reconstruction, Use, Maintenance, and Reclamation

Control of Damage to Public or Private Property. All roads used by SCM have been or will be designed in accordance with applicable county and State standards. By designing according to these standards, damage to public or private property will be minimized.

Road Surfacing. The surface of the county road which accesses the mine site will consist of asphalt. Remaining roads will be either asphalt-surface, gravel-surface, or unimproved dirt roads (see Sections 527.100 and 527.200 and Plate 5-2). Road surface material will be determined at the time of facility development and will meet performance standards for their specific surface material and function. No acid- or toxic-forming materials will be used in the road surfaces.

Canyon Fuel Company, LLC
SCM/Dugout Canyon Mine

Mining and Reclamation Plan
March 7, 2007

APPENDIX 5-12

Miscellaneous Information - 40 Acre Permit Area Expansion

Canyon Fuel Company, LLC
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542



February 22, 2007

Milton & Ardith Thayn Trust
Sunnyside Star Route
Price, Utah 84501
C/O David Thayn

RE: Pre-subsidence Survey – Addition of 40 Acres to Federal Lease U-07064-027821
Dugout Canyon Mine, Canyon Fuel Company, LLC, C/007/039, Carbon County, Utah

Dear Mr. Thayn;

The following information is provided in accordance with requirement of Utah State Regulations R645-301-525.100, Pre-subsidence survey.

As clarification the definition of "renewable resource lands" as referenced in the following regulations has been provided per R645-100-200, Natural Resource: Oil, Gas and Mining; Coal, Administrative.

"Renewable Resource Lands" means aquifers and areas for the recharge of aquifers and other underground waters, areas for agricultural or silvicultural production of food and fiber, and grazing lands.

525.100 Pre-subsidence survey. Each application for UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES will include:

525.110 A map of the permit and adjacent areas at a scale of 1:12,000, or larger if determined necessary by the Division, showing the location and type of structures and renewable resource lands that subsidence may materially damage or for which the value or reasonably foreseeable use may be diminished by subsidence, and showing the location and type of State-appropriated water that could be contaminated, diminished, or interrupted by subsidence.

Maps currently within approved Dugout Canyon Mine, Mining and Reclamation Plan (M&RP): Maps are available for review at the Utah Division of Oil, Gas and Mining offices in Price and Salt Lake City, Utah.

Plates

- 1-1 Surface Ownership
- 1-2 Coal Ownership
- 1-4 Dugout Canyon Mine Permit Area
- 2-1 Native Soil Types Present in Dugout Canyon Mine Permit Area
- 3-1 Vegetation
- 3-1E Pace Canyon Fan Vegetation and Reference Area

- 4-1 Land Uses
- 5-7 Proposed Mine Sequence and Planned Subsidence Boundary
- 7-1 Hydrologic Monitoring Stations
- 7-2 Water Rights

The following plates are located in Appendix 5-10

- PC 5-2 Pace Canyon Fan Surface Facilities and Cross-Sections
- PC 5-4 Pace Canyon Fan Existing Surface Topography

Two plates are being provided with this letter, a drawing showing the proposed mining plan for 2007 - 2011 and a drawing showing the hydrologic monitoring stations.

525.120 A narrative indicating whether subsidence, if it occurred, could cause material damage to or diminish the value or reasonably foreseeable use of such structures or renewable resource lands or could contaminate, diminish, or interrupt State-appropriated water supplies.

Information to address subsidence is provided in Sections 332, 521, 525, 531, 623, 625, 632, 642, 727 and 830 of the Dugout Canyon Mine M&RP.

To the best of the knowledge of Canyon Fuel Company, LLC – Dugout Canyon Mine and according to aerial photographs (November 2006) taken of the 40 Acres area (T. 13 S., R. 13 E., SLBM, Utah, Section 21: NW1/4NW1/4) proposed for addition to the federal lease, the only structure is a fence line on the north end of the section.

Dugout Canyon Mine personnel have been on and surveyed lands belonging to the Thayn Trust, but have not trespassed on lands belonging to Gil Conover, therefore the Conover property adjacent to the proposed 40 acres has been inventoried by using aerial photographs, except lands which may be visible from existing roads.

No material damage to or diminish to the value or reasonable foreseeable use of structures or renewable resource land is anticipated. Should material damage to or diminish to the value or reasonable foreseeable use of structures or renewable resource land occur, repair or compensation are discussed in Section 525 of the M&RP, see attached.

Section 727 (see attached) provides a description of the measures to be taken to replace adversely affected State-appropriated water supplies or to mitigate or remedy any subsidence-related material damage to the land.

525.130 A survey of the condition of all non-commercial buildings or occupied residential dwellings and structures related thereto, that may be materially damaged or for which the reasonably foreseeable use may be diminished by subsidence, within the area encompassed by the applicable angle of draw; as well as a survey of the quantity and quality of all State-appropriated water supplies within the permit area and adjacent area that could be contaminated, diminished, or interrupted by subsidence. If the applicant cannot make this survey because the owner will not allow access to the site, the applicant will notify the owner, in writing, of the effect that denial of access will have as described in R645-301-525. The applicant must pay for any technical assessment or engineering evaluation used to determine the

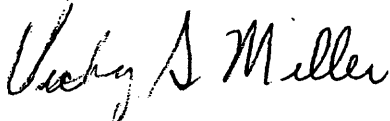
pre-mining condition or value of such non-commercial buildings or occupied residential dwellings and structures related thereto and the quantity and quality of State-appropriated water supplies. The applicant must provide copies of the survey and any technical assessment or engineering evaluation to the property owner and to the Division.

To the best of the knowledge of Canyon Fuel Company, LLC – Dugout Canyon Mine, there is no non-commercial buildings, occupied residential dwellings and structures related thereto, which may be diminished by subsidence, within the area encompassed by the applicable angle of draw associated with the proposed area to be added in association with a federal lease modification. The area to be added is described as T. 13 S., R. 13 E., SLBM, Utah, Section 21: NW1/4NW1/4.

A survey of the quantity and quality of all State-appropriated water supplies within the permit area and adjacent area that could be contaminated, diminished, or interrupted by subsidence is provided in Chapter 7 of the M&RP, the UDOGM water database at www.ogm.utah.gov, water rights at the Division of Water Rights office in Salt Lake City or the State Engineers office in Price.

Refer to the attached information from the SMCR/DOGM approved M&RP concerning subsidence. If you require additional information or have information to be added to this survey, please call me at (435) 636-2869

Sincerely yours,



Vicky S. Miller

cc: Dave Spillman, with attachments
Pamela Grubaugh-Littig, w/o attachments

Exerpt from the Dugout Canyon Mine SMCRA/UDOGM approved permit.

525 Subsidence

525.100 Subsidence Control Plan

Structures and Renewable Resource Lands. As noted in Section 521.100, no major electric transmission lines, pipeline, or agricultural drainage tile fields exist within the area of potential subsidence. As described in Section 527.100, the roads within the area of potential subsidence consist of private roads that are owned and maintained by the parent company of SCM and private citizens, including the Thayn family. These are unimproved dirt roads that may be used for access to the lease area. Localized damage that occurs to roads not owned by the parent company of SCM will be repaired to a condition acceptable to both the private landowner and SCM. No other structures are known to exist within the area of potential subsidence.

Renewable resource lands within the permit and adjacent areas are shown on Plate 4-1 and discussed in Section 411 of this M&RP. The area of potential subsidence is currently used for livestock grazing and wildlife habitat, with limited timber production on adjacent lands to the east of Dugout Canyon (see Section 411.120).

Mining Methods. As noted in Section 523, continuous miner and longwall mining methods will be used in the Dugout Canyon Mine. The size, sequence, and timing for the development of the underground workings are shown on Plate 5-7 and in Annual Reports.

Physical Conditions Affecting Subsidence. A detailed description of the physical conditions in the permit area that may influence subsidence (i.e., overburden lithology and thickness, coal seam thickness, etc.) is provided in Chapter 6. In particular, Plate 6-1 provides a surficial geologic map of the permit and adjacent areas, Plate 6-2 shows the locations of the coal-seam outcrops in the vicinity of the proposed surface facilities, and Figure 6-1, Plate 6-3, 6-3A and 6-3B provide geologic cross sections based on data collected from drill holes in the area. Furthermore, information related to the physical conditions which may affect mining is presented in Sections 622 (a discussion of the cross sections), 624.100 (a discussion of stratigraphic and structural conditions), and 624.300 (a discussion of rock clay content), as well as Appendix 6-1 (drill-hole logs).

Subsidence Control Measures. Most of the land within the permit area will eventually be affected by subsidence. Anticipated areas of subsidence are shown on Plate 5-7. This subsidence boundary was projected to the surface based on an angle of draw of 30 degrees as measured from the vertical as required in R645-301-525.542. It is presumed that the actual angle of draw will be less, based upon results of mining and subsidence in the general area. Plate 5-7 illustrates the projected extent of subsidence based on a 30 degree angle of draw. The primary areas where future subsidence is not anticipated are the areas overlying the previous workings shown on Plate 5-1 (since these areas will not be re-mined). Plate 5-7 also illustrates a subsidence buffer zone that extends beyond the limits of Federal Lease U7064-027821 and State Lease ML-48435. This buffer zone does not suggest that CFC will mine outside of the lease boundaries, however, it does indicate the limit of projected subsidence. Appendix 5-11 contains a report "Prediction of Surface Deformation Resulting from Longwall Mining" which discusses subsidence. The specific sections within the report discuss, subsidence mechanism; mining, geologic conditions and subsidence characteristics; predicted ground movements and the monitoring program. This information is provided per deficiencies in the 2005 mid-term review of the M&RP.

Subsidence Monitoring. Numerous control points have been established within the permit and nearby areas to assist in subsidence surveys (see Plate 5-7). Coordinates and elevations of these control points (as established in January 1984) are provided in Table 5-2. Coordinates and elevations of control points are also provided in the Mine's Annual Reports. The control points consist of traverse monuments, benchmark monuments, and survey stations which have been constructed generally as follows: Future monuments and stations that are required for proper control will be installed to provide one monitoring point per panel. Since geologic and mining uncertainties often force a change in planned mining

sequences, future control points may be installed only after the mine panels are in their development phase.

Re-surveys will concentrate on areas which have been mined in the past or are anticipated to be mined within the upcoming year. Hence, the area of detailed survey may be expanded each progressive year.

Annual re-surveys of the mine permit area will produce vertical control at the same sites as the previous year. Information on each site will be produced annually while the area underlying the site is being actively mined or is still potentially subsiding. The subsiding areas which show no change for two consecutive years will be considered stable and will be omitted from further annual surveys. If additional mining is anticipated within the stable areas, these areas will again be added to the annual surveys.

In addition to the ground surveys, aerial photogrammetric methods will be included in the surveys when the areas become too large to feasibly handle with ground surveys. This method may be added to enhance the ground surveys and to cover larger areas as the mine expands. Visual checks for subsidence will be made during all surface activities, especially during water monitoring activities. These visual surveys will be used to detect surface irregularities and surface cracks.

Visual ground checks for subsidence will be made of areas surrounding monitored seeps, springs and streams during hydrologic monitoring. In addition, roads used to access hydrologic monitoring stations will be visually checked for evidence of subsidence during monitoring activities. The observations made during hydrologic monitoring will be included in the Mine's Annual Report.

Anticipated Effects of Subsidence. Based on experience in the region and the results of investigations performed by Dunrud (1976), future subsidence in the permit area is anticipated to result in the formation of tension cracks, with these cracks healing to some degree following formation. It is further anticipated that no substantial damage will occur to rangeland conditions as a result of subsidence within the permit area. The only potential effects in that respect will be the exposure of plant roots where tension cracks form.

It is not anticipated that material damage will occur to streams as a result of subsidence. Gentry and Abel (1978) demonstrated that topographic lows (e.g., stream channels) tend to be protected by upwarping of adjacent slopes during subsidence. Therefore, mining-induced surface fracturing should be very limited (or nonexistent) within stream channel areas. Any fracturing that does occur in stream channels is likely to fill rapidly as a result of sedimentation.

It is also not anticipated that subsidence will significantly affect springs within the permit and adjacent areas. Von Schonfeldt et al. (1980) found that uniform subsidence "rarely causes problems to renewable resources such as aquifers, streams, and ranch lands." Since second mining will occur uniformly across the permit area, the resulting subsidence should also be uniform, minimizing the potential impacts to overlying springs.

525.200 Subsidence Control

Adopted Control Measures. SCM has adopted a mining technology which provides for planned subsidence in a predictable and controlled manner. As planned, this subsidence will be uniform, thus minimizing impacts to surface resources.

Correction of Material Damage. No material damage of surface resources is anticipated as a result of subsidence in the permit area. However, should material damage occur, SCM will correct any material damage resulting from subsidence caused to surface lands to the extent technologically and economically feasible by restoring the land to a condition capable of maintaining the value and reasonably foreseeable uses which it was capable of supporting before the subsidence. In addition, SCM will notify the Division of any slide, rock fall, or other disturbance known to be caused by subsidence that will have an adverse effect on the environment.

Protection of Significant Surface Resources. None of the following exist within the area of potential subsidence associated with the Dugout Canyon Mine:

Public buildings or facilities,

Churches, schools, and hospitals,

Impoundments with a storage capacity of 20 acre-feet or more or bodies of water with a volume of 20 acre-feet or more,

Aquifers or bodies of water that serve as a significant water source for any public water supply system, or

Urbanized areas, cities, towns, or communities.

Hence, no special control measures are required to preclude subsidence impacts to these resources. Refer to Appendix 5-11 for additional discussion of subsidence.

525.300 Public Notice of Proposed Mining

Each owner of property or resident within the area above an underground mining block and adjacent area that may be affected by subsidence will be notified by mail at least 6 months prior to mining or within that period if approved by the Division. The notification will contain:

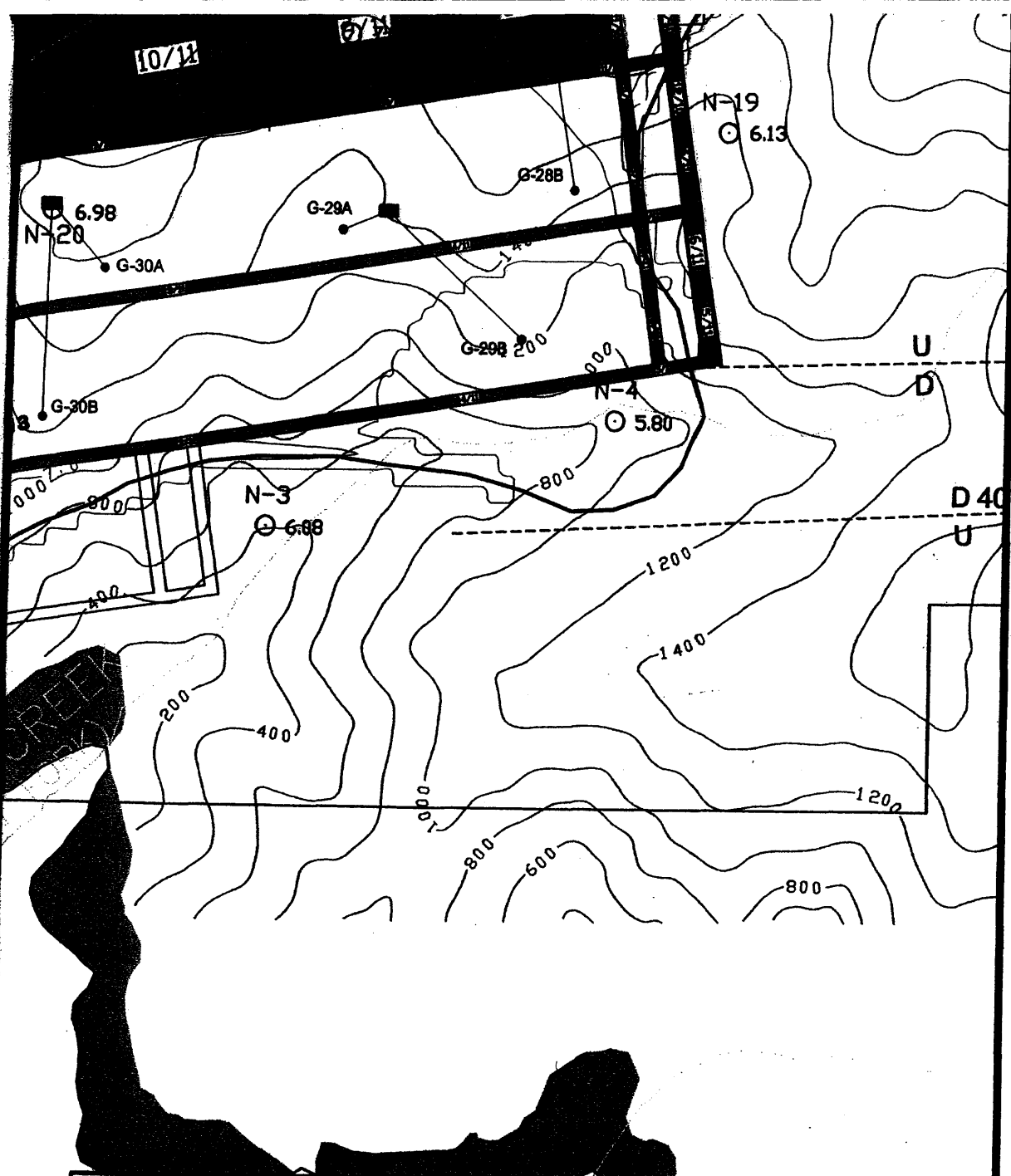
Identification of specific areas in which mining will take place;

Approximate dates the specific areas will be undermined; and


The location or locations where the SCM subsidence control plan may be examined.

727 Alternative Water Source Information

Water Replacement. The Permittee will replace the water supply of any land owner if such a water supply proves to be contaminated, diminished or interrupted as a result of the mining operations. First, a determination will be made by the Division in accordance with R645 - 301- 731.800 as to whether or not material damage has occurred. Then, in accordance with Regulation R645-301-525.510, Dugout Canyon Mine will correct any material damage resulting from subsidence caused to surface lands (which includes water rights), to the extent technologically and economically feasible, by restoring the land to a condition capable of maintaining the value and reasonably foreseeable uses that it was capable of supporting before subsidence damage. Negotiations will be held with the water right holders to determine the best plan of action and implementation of water replacement.



ENGINEER

DATE: 10/19/06		 Canyon Fuel Company, LLC Dugout Canyon Mine
DESIGNED BY:		
DRAWN BY:	JKS	
CHECKED BY:	WB	
REVISED BY:		
SCALE: 1"=1000' FILENAME: 2007 Base Case 10-17-06.dwg		2007 BASE CASE (10-17-06)
P.O. BOX 1029 WELLINGTON, UTAH 84542		DRAWING OR MAP NUMBER 2007 Base Case 10-17-06.Dwg

Canyon Fuel Company, LLC
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542



February 22, 2007

Gil L. Conover
450 So. State
Ferron, UT 84523

RE: Pre-subsidence Survey – Addition of 40 Acres to Federal Lease U-07064-027821
Dugout Canyon Mine, Canyon Fuel Company, LLC, C/007/039, Carbon County, Utah

Dear Mr. Conover;

The following information is provided in accordance with requirement of Utah State Regulations R645-301-525.100, Pre-subsidence survey.

As clarification the definition of "renewable resource lands" as referenced in the following regulations has been provided per R645-100-200, Natural Resource: Oil, Gas and Mining; Coal, Administrative.

"Renewable Resource Lands" means aquifers and areas for the recharge of aquifers and other underground waters, areas for agricultural or silvicultural production of food and fiber, and grazing lands.

525.100 Pre-subsidence survey. Each application for UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES will include:

525.110 A map of the permit and adjacent areas at a scale of 1:12,000, or larger if determined necessary by the Division, showing the location and type of structures and renewable resource lands that subsidence may materially damage or for which the value or reasonably foreseeable use may be diminished by subsidence, and showing the location and type of State-appropriated water that could be contaminated, diminished, or interrupted by subsidence.

Maps currently within approved Dugout Canyon Mine, Mining and Reclamation Plan (M&RP):
Maps are available for review at the Utah Division of Oil, Gas and Mining offices in Price and Salt Lake City, Utah.

Plates

- 1-1 Surface Ownership
- 1-2 Coal Ownership
- 1-4 Dugout Canyon Mine Permit Area
- 2-1 Native Soil Types Present in Dugout Canyon Mine Permit Area
- 3-1 Vegetation
- 3-1E Pace Canyon Fan Vegetation and Reference Area

- 4-1 Land Uses
- 5-7 Proposed Mine Sequence and Planned Subsidence Boundary
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- 7-2 Water Rights

The following plates are located in Appendix 5-10

PC 5-2 Pace Canyon Fan Surface Facilities and Cross-Sections

PC 5-4 Pace Canyon Fan Existing Surface Topography

Two plates are being provided with this letter, a drawing showing the proposed mining plan for 2007 - 2011 and a drawing showing the hydrologic monitoring stations.

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Information to address subsidence is provided in Sections 332, 521, 525, 531, 623, 625, 632, 642, 727 and 830 of the Dugout Canyon Mine M&RP.

To the best of the knowledge of Canyon Fuel Company, LLC – Dugout Canyon Mine and according to aerial photographs (November 2006) taken of the 40 Acres area (T. 13 S., R. 13 E., SLBM, Utah, Section 21: NW1/4NW1/4) proposed for addition to the federal lease, the only structure is a fence line on the north end of the section.

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No material damage to or diminish to the value or reasonable foreseeable use of structures or renewable resource land is anticipated. Should material damage to or diminish to the value or reasonable foreseeable use of structures or renewable resource land occur, repair or compensation are discussed in Section 525 of the M&RP, see attached.

Section 727 (see attached) provides a description of the measures to be taken to replace adversely affected State-appropriated water supplies or to mitigate or remedy any subsidence-related material damage to the land.

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dwellings and structures related thereto and the quantity and quality of State-appropriated water supplies. The applicant must provide copies of the survey and any technical assessment or engineering evaluation to the property owner and to the Division.

To the best of the knowledge of Canyon Fuel Company, LLC – Dugout Canyon Mine, there is no non-commercial buildings, occupied residential dwellings and structures related thereto, which may be diminished by subsidence, within the area encompassed by the applicable angle of draw associated with the proposed area to be added in association with a federal lease modification. The area to be added is described as T. 13 S., R. 13 E., SLBM, Utah, Section 21: NW1/4NW1/4.

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Refer to the attached information from the SMCRA/DOGM approved M&RP concerning subsidence. If you require additional information or have information to be added to this survey, please call me at (435) 636-2869.

Sincerely yours,



Vicky S. Miller

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Pamela Grubaugh-Littig, w/o attachments

Exerpt from the Dugout Canyon Mine SMCRA/UDOGM approved permit.

525 Subsidence

525.100 Subsidence Control Plan

Structures and Renewable Resource Lands. As noted in Section 521.100, no major electric transmission lines, pipeline, or agricultural drainage tile fields exist within the area of potential subsidence. As described in Section 527.100, the roads within the area of potential subsidence consist of private roads that are owned and maintained by the parent company of SCM and private citizens, including the Thayn family. These are unimproved dirt roads that may be used for access to the lease area. Localized damage that occurs to roads not owned by the parent company of SCM will be repaired to a condition acceptable to both the private landowner and SCM. No other structures are known to exist within the area of potential subsidence.

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- Public buildings or facilities,
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Canyon Fuel Company, LLC
Dugout Canyon Mine
P.O. Box 1029
Wellington, Utah 84542



March 16, 2007

RE: Pre-subsidence Survey – Addition of 40 Acres to Federal Lease U-07064-027821
Dugout Canyon Mine, Canyon Fuel Company, LLC, C/007/039, Carbon County, Utah

TO: Water Conservancy District;

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Section 727 (see attached) provides a description of the measures to be taken to replace adversely affected State-appropriated water supplies or to mitigate or remedy any subsidence-related material damage to the land.

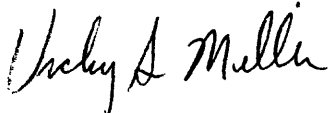
525.130 A survey of the condition of all non-commercial buildings or occupied residential dwellings and structures related thereto, that may be materially damaged or for which the reasonably foreseeable use may be diminished by subsidence, within the area encompassed by the applicable angle of draw; as well as a survey of the quantity and quality of all State-appropriated water supplies within the permit area and adjacent area that could be contaminated, diminished, or interrupted by subsidence. If the applicant cannot make this survey because the owner will not allow access to the site, the applicant will notify the owner, in writing, of the effect that denial of access will have as described in R645-301-525. The applicant must pay for any technical assessment or engineering evaluation used to determine the pre-mining condition or value of such non-commercial buildings or occupied residential dwellings and structures related thereto and the quantity and quality of State-appropriated water supplies. The applicant must provide copies of the survey and any technical assessment or engineering evaluation to the property owner and to the Division.

To the best of the knowledge of Canyon Fuel Company, LLC – Dugout Canyon Mine, there is no non-commercial buildings, occupied residential dwellings and structures related thereto, which may be diminished by subsidence, within the area encompassed by the applicable angle of draw associated with the proposed area to be added in association with a federal lease modification. The area to be added is described as T. 13 S., R. 13 E., SLBM, Utah, Section 21: NW1/4NW1/4.

A survey of the quantity and quality of all State-appropriated water supplies within the permit area and adjacent area that could be contaminated, diminished, or interrupted by subsidence is provided in Chapter 7 of the M&RP, the UDOGM water database at www.ogm.utah.gov, water rights at the Division of Water Rights office in Salt Lake City or the State Engineers office in Price.

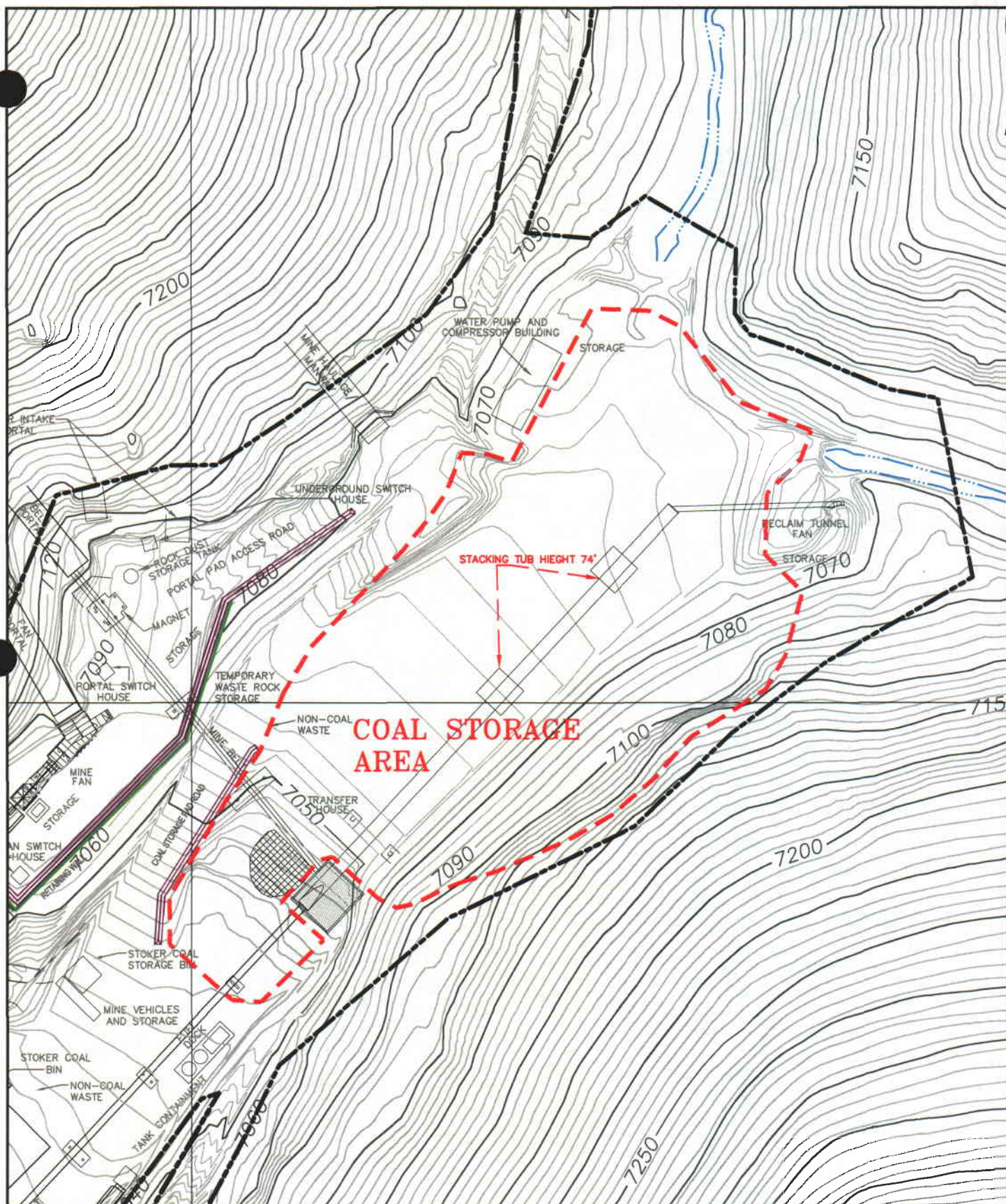
Refer to a copy of the SMCRA/DOGM approved M&RP located at Division Offices located at 455 West Railroad Avenue, Price, Utah or 1594 West North Temple, Suite 1210, Salt Lake City, Utah for additional information concerning subsidence.

Sincerely yours,



Vicky S. Miller

cc: Dave Spillman, with attachments
Pamela Grubaugh-Littig, w/o attachments



MAXIMUM POTENTIAL
STOCKPILE FOOTPRINT

DISTURBED AREA BOUNDARY



REVISIONS OR UP-DATES			DATE:	2-26-07
NO.	DATE	BY	DESIGNED BY:	
			DRAWN BY:	SC
			CHECKED BY:	
			SCALE:	1"=100'
FILENAME: Y:\SAM\GAD\2007 PERMIT DRAWINGS\STOCKPILE FOOTPRINT				



Canyon Fuel Company, LLC
Dugout Canyon Mine

APPENDIX 5-12 POTENTIAL AREA FOR COAL STORAGE

P.O. BOX 1029
WELLINGTON, UTAH 84542

DRAWING OR
MAP NUMBER
APPENDIX 5-12

CHAPTER 7
HYDROLOGY

CHAPTER 7 HYDROLOGY

710 INTRODUCTION

711 General Requirements

This chapter presents a description of:

- Existing hydrologic resources within the permit and adjacent areas;
- Proposed operations and the potential impacts to the hydrologic balance;
- Methods of compliance with design criteria and the calculations utilized to show compliance;
- Applicable hydrologic performance standards; and
- Hydrologic reclamation plans for the Dugout Canyon Mine.

Additional information can be found in the following amendments: Methane Degassification Amendment (August 2003), Refuse Pile Amendment (February 2003), and the Leachfield Addendum A-1 (March 2001). The remainder of the State Lease ML-48435-OBA (SITLA Lease) was incorporated into the Dugout Canyon Mine permit area in 2005. In 2007, 40 acres was added to Federal Coal Lease U-07064-027821 to accommodate a revised mine plan. Refer to Plate 1-2 for the location of the acreage incorporated into the permit boundary.

712 Certification

All maps, plans, and cross sections presented in this chapter have been certified by a qualified, registered professional engineer.

713 Inspection

Impoundments associated with the mining and reclamation operations will be inspected as described in Section 514.300 of this M&RP.

plans presented herein were developed based on information presented in the PHC determination, the baseline hydrologic data, and the geologic data presented in Chapter 6 of this M&RP.

Monitoring wells included in the groundwater monitoring program are GW-10-2, GW-11-2, and GW-24-1. The remaining monitoring wells in the general vicinity are either too remote from the permit area to be indicative of impacts occurring from the Dugout Canyon operations (i.e., GW-5-1, GW-6-1, GW-32-1, and G-58.5) or are completed across multiple aquifers (i.e., GW-19-1), making data interpretation difficult.

The monitoring wells are all completed in the Price River Formation or the underlying Castlegate Sandstone. Because the Castlegate Sandstone immediately overlies the Blackhawk Formation, data collected from these wells allow hydrologic impacts of mining to be evaluated in groundwater systems which overlie the mine workings but underlie the Flagstaff and North Horn groundwater systems.

Water-level measurements will be collected on a quarterly basis when the wells are accessible. Given the ages of the wells and the probable deterioration of the casing materials, no attempts will be made to collect water-quality data from the monitoring wells.

The springs to be included in the operational and post-mining groundwater monitoring program are:

<u>Spring</u>	<u>Formation</u>
SC-65	Colton
SP-20	Flagstaff
SC-14	North Horn
SC-100	Flagstaff (at North Horn FM. Contact)
SC-116	North Horn
200	North Horn
203	North Horn
227	Castlegate Sandstone
259	North Horn
260	Colton
259A	Colton

Locations of these springs are noted on Plate 7-1.

The purpose of monitoring the above-listed springs will be to assess potential impacts to groundwater systems overlying the Blackhawk Formation due to subsidence and mine dewatering. Springs have been selected for monitoring in the Colton, Flagstaff, North Horn, and Castlegate Sandstone Formations. These springs are reasonably accessible and, based on the historical data, are representative of conditions within their respective formations.

TABLE 7-4
Groundwater Monitoring Program
Field and Laboratory Measurement Protocol

<u>Monitoring Wells</u>	<u>Protocol</u>	<u>Comments</u>
GW-10-2	A, 1	Screened in Castlegate Sandstone
GW-11-2	A, 1	Screened in Price River Formation
GW-24-1	A, 1	Screened in Castlegate Sandstone
<u>Springs</u>		
SP-20 (S-30)	B, 2, 5	Flagstaff
SC-14	B, 2, 5	North Horn
SC-65	B, 2, 5	Colton
SC-100	B, 2, 5	Flagstaff (at North Horn FM. Contact)
SC-116	B, 3, 5	North Horn
200	B, 3, 5	North Horn
203	B, 3, 5	North Horn
227	B, 3, 5	Castlegate Sandstone
259	B, 3, 5	North Horn
259A	B	Colton
260	B, 3, 5	Colton
MD-1	C, 4	Gilson Seam Workings Discharge

Protocols

- A Monitoring well: quarterly water level measurement only
- B Spring: quarterly flow measurements
- C Mine Water Discharge, abandoned Gilson Seam workings: quarterly flow measurements

Water quality

- 1 Monitoring well: No quality measurements.
- 2 Spring: quarterly operational groundwater quality parameters for two years beginning 3rd quarter 1999 after which quarterly field measurements only.
- 3 Spring: quarterly baseline parameters for three years beginning 1st quarter 1999 after which quarterly field measurements only.
- 4 Mine water discharge: quarterly operational water quality parameters.
- 5 During wet or dry years (as described in the PHC, Appendix 7-3), flows will be taken weekly between April 1 and August 31 as conditions permit. Also during the first wet or dry year, one operational laboratory sample and one Tritium sample will be obtained at these sites during high and low flow season.

Groundwater Quality Parameters

FIELD MEASUREMENTS

Water Level or Flow
pH
Specific Conductivity
Temperature

REPORTED AS

Feet or gpm or cfs
pH units
 $\mu\text{s/cm}$ @ 25°C
°C

Groundwater was discovered discharging from old Gilson coal seam workings located on the east side of Dugout Canyon during construction of the Dugout Canyon Mine in September 1998. Prior to construction, this water seeped unnoticed through unconsolidated fill and into Dugout Creek. The water discharging from these old workings will be monitored on a quarterly basis for the parameters listed in Table 7-4 beginning in the fourth quarter of 1998. The monitoring point is labeled MD-1 on Plate 7-1.

Data will be collected from the Dugout Canyon Mine and Pace Canyon Fan Portal mine-water discharge point in accordance with the UPDES permits. No water will be discharged prior to obtaining the necessary UPDES permits. The monitoring requirements proposed herein, including the analytical parameters and the sampling frequency, may be modified in the future in consultation with the Division if the data demonstrate that such a modification is justified.

Data will be collected under the groundwater monitoring program every year following the completion of surface reclamation activities. During the post-mining period, water levels will be collected from the monitoring wells and data/samples will be collected from the identified springs once each year during September or October (i.e., the low-flow season while the sites are still accessible). Groundwater monitoring during the post-mining period will continue until bond release.

All groundwater monitoring data will be submitted to the Division by the end of the quarter following sampling. If analyses of any groundwater sample indicates noncompliance with the permit conditions, the permittee will promptly notify the Division and take immediate appropriate actions. UPDES reporting requirements will be met for the mine-water discharge points. The Snotel data used to determine "wet" or "dry" years, as described previously in this section, will be submitted with the first quarter water monitoring data beginning in the year 2001 or in the annual report.

Equipment, structures and other devices used in conjunction with monitoring the quality and quantity of groundwater in the permit and adjacent areas have been or will be installed, maintained, and operated in accordance with accepted procedures. Where feasible, this equipment will be removed or properly abandoned by the permittee when no longer needed.

Surface Water Monitoring. Surface water monitoring to be conducted in the permit and adjacent areas will consist of data collection from streams and sedimentation pond discharges. Locations

APPENDIX 7-2

Groundwater Monitoring Data

SPRING 259A

"259A" Monitoring Data 2006

Date	Time	pH	Cond.	Temp.	Flow (gpm)	Comments
3/24/06	1015				NOA	Snow/Ice
6/18/06	1055	7.04	533	5	1	
7/18/06	1055	7.04	884	7	0.5	
10/19/06	1650	7.27	543	10	0.25	

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Soldier Creek Coal Company

Project ID:

Sample ID: 259A

ACZ Sample ID: L57222-02

Date Sampled: 06/18/06 10:55

Date Received: 06/20/06

Sample Matrix: Ground Water

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP							06/23/06 14:36	erf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	77.8			mg/L	0.2	1	06/29/06 22:21	wfg
Iron, dissolved	M200.7 ICP		U		mg/L	0.02	0.05	06/29/06 22:21	wfg
Iron, total	M200.7 ICP		U		mg/L	0.02	0.05	06/26/06 22:30	jic
Magnesium, dissolved	M200.7 ICP	25.9			mg/L	0.2	1	06/29/06 22:21	wfg
Manganese, dissolved	M200.7 ICP		U		mg/L	0.005	0.03	06/29/06 22:21	wfg
Manganese, total	M200.7 ICP		U		mg/L	0.005	0.03	06/26/06 22:30	jic
Potassium, dissolved	M200.7 ICP	0.9	B		mg/L	0.3	1	06/29/06 22:21	wfg
Sodium, dissolved	M200.7 ICP	11.4			mg/L	0.3	1	06/29/06 22:21	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃		322			mg/L	2	20	06/23/06 0:00	ct
Carbonate as CaCO ₃			U		mg/L	2	20	06/23/06 0:00	ct
Hydroxide as CaCO ₃			U		mg/L	2	20	06/23/06 0:00	ct
Total Alkalinity		322			mg/L	2	20	06/23/06 0:00	ct
Cation-Anion Balance	Calculation								
Cation-Anion Balance		-1.5			%			06/30/06 15:01	calc
Sum of Anions		6.7			meq/L	0.1	0.5	06/30/06 15:01	calc
Sum of Cations		6.5			meq/L	0.1	0.5	06/30/06 15:01	calc
Chloride	M325.2 - Colorimetric	3	B		mg/L	1	5	06/27/06 14:20	kmc
Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	230			mg/L	10	20	06/23/06 12:16	jif
Sulfate	SM4500 SO4-D	10	B		mg/L	10	50	06/26/06 15:50	kmc
TDS (calculated)	Calculation	322			mg/L	10	50	06/30/06 15:01	calc
TDS (ratio - measured/calculated)	Calculation	0.71						06/30/06 15:01	calc

PH. 7.04

COND 533

TEMP 5

FLOW 1

ACZ Laboratories, Inc.

2773 Downhill Drive, Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Soldier Creek Coal Company

Project ID:

Sample ID: 259A

ACZ Sample ID: L57767-01

Date Sampled: 07/18/06 10:55

Date Received: 07/20/06

Sample Matrix: Ground Water

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP							08/01/06 22:48	erf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	81.1			mg/L	0.2	1	08/01/06 6:46	jic
Iron, dissolved	M200.7 ICP		U		mg/L	0.02	0.05	08/01/06 6:46	jic
Iron, total	M200.7 ICP	0.07		*	mg/L	0.02	0.05	08/01/06 13:42	jic
Magnesium, dissolved	M200.7 ICP	27.7			mg/L	0.2	1	08/01/06 6:46	jic
Manganese, dissolved	M200.7 ICP		U		mg/L	0.005	0.03	08/03/06 21:04	msh
Manganese, total	M200.7 ICP		U	*	mg/L	0.005	0.03	08/02/06 16:58	jic
Potassium, dissolved	M200.7 ICP	1.1			mg/L	0.3	1	08/01/06 6:46	jic
Sodium, dissolved	M200.7 ICP	12.3			mg/L	0.3	1	08/01/06 6:46	jic

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃		303			mg/L	2	20	07/29/06 0:00	ct
Carbonate as CaCO ₃			U		mg/L	2	20	07/29/06 0:00	ct
Hydroxide as CaCO ₃			U		mg/L	2	20	07/29/06 0:00	ct
Total Alkalinity		303			mg/L	2	20	07/29/06 0:00	ct
Cation-Anion Balance	Calculation								
Cation-Anion Balance		1.5			%			08/09/06 10:50	calc
Sum of Anions		6.7			meq/L	0.1	0.5	08/09/06 10:50	calc
Sum of Cations		6.9			meq/L	0.1	0.5	08/09/06 10:50	calc
Chloride	M325.2 - Colorimetric	3	B	*	mg/L	1	5	07/27/06 11:48	jff
Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	350			mg/L	10	20	07/24/06 11:20	kmc
Sulfate	SM4500 SO ₄ -D	30	B		mg/L	10	50	08/04/06 12:28	kmc
TDS (calculated)	Calculation	337			mg/L	10	50	08/09/06 10:50	calc
TDS (ratio - measured/calculated)	Calculation	1.04						08/09/06 10:50	calc

pH 7.04
COND 884
TEMP 7
FLOW 0.5 gpm

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Soldier Creek Coal Company

Project ID:

Sample ID: 259A

ACZ Sample ID: L59555-01

Date Sampled: 10/19/06 16:50

Date Received: 10/23/06

Sample Matrix: Ground Water

Inorganic Prep

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Total Hot Plate Digestion	M200.2 ICP							10/25/06 19:48	erf

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	77.6			mg/L	0.2	1	10/25/06 19:47	msh
Iron, dissolved	M200.7 ICP		U		mg/L	0.02	0.05	10/26/06 18:26	msh
Iron, total	M200.7 ICP		U		mg/L	0.02	0.05	10/30/06 23:44	msh
Magnesium, dissolved	M200.7 ICP	25.9			mg/L	0.2	1	10/25/06 19:47	msh
Manganese, dissolved	M200.7 ICP		U	*	mg/L	0.005	0.03	10/25/06 19:47	msh
Manganese, total	M200.7 ICP		U		mg/L	0.005	0.03	10/27/06 20:40	msh
Potassium, dissolved	M200.7 ICP	1.1			mg/L	0.3	1	10/25/06 19:47	msh
Sodium, dissolved	M200.7 ICP	11.9			mg/L	0.3	1	10/25/06 19:47	msh

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO ₃	SM2320B - Titration								
Bicarbonate as CaCO ₃		309			mg/L	2	20	11/01/06 0:00	ct
Carbonate as CaCO ₃			U		mg/L	2	20	11/01/06 0:00	ct
Hydroxide as CaCO ₃			U		mg/L	2	20	11/01/06 0:00	ct
Total Alkalinity		309			mg/L	2	20	11/01/06 0:00	ct
Cation-Anion Balance Calculation									
Cation-Anion Balance		-0.8			%			11/15/06 0:00	calc
Sum of Anions		6.6			meq/L	0.1	0.5	11/15/06 0:00	calc
Sum of Cations		6.5			meq/L	0.1	0.5	11/15/06 0:00	calc
Chloride	M325.2 - Colorimetric		U		mg/L	1	5	10/31/06 12:25	jlf
Residue, Filterable (TDS) @180C	M160.1 - Gravimetric	360			mg/L	10	20	10/26/06 15:50	cas
Sulfate	SM4500 SO4-D	20	B	*	mg/L	10	50	11/09/06 14:42	mhm/ct
TDS (calculated)	Calculation	322			mg/L	10	50	11/15/06 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.12						11/15/06 0:00	calc

PH 7.27
COND 543
TEMP 10
FLOW 0.25 gpm

Select Related Information

(WARNING: Water Rights makes NO claims as to the accuracy of this data.)

RUN DATE: 03/01/2007

WATER RIGHT: 91-3033

APPLICATION/CLAIM NO.:

CERT. NO.:

OWNERSHIP*****

NAME: George M. Thayn
ADDR: Wellington UT 84542

DATES,

ETC.*****

LAND OWNED BY APPLICANT? Yes

FILED: PRIORITY: 00/00/1869|PUB BEGAN: PUB ENDED: NEWSPAPER:
ProtestEnd: |PROTESTED: [No]|HEARNG HLD: |SE ACTION: []|ActionDate:
|PROOF DUE:
EXTENSION: |ELEC/PROOF:[]|ELEC/PROOF: |CERT/WUC: 05/05/1967|LAP, ETC:
|PROV LETTER:
RENOVATE: |RECON REQ: |TYPE: []
PD Book No. 5 Map: 46
Type of Right: Diligence Claim Source of Info: Proposed Determination Status:

LOCATION OF WATER RIGHT*** (Points of Diversion: Click on Location to access PLAT Program.) *****

FLOW: 0.011 cfs
COUNTY: Carbon

COMMON DESCRIPTION:

SOURCE: Unnamed Spring

POINT OF DIVERSION:

(1)Stockwatering directly on spring located in NW4NW4 Sec 21, T13S, R13E, SLBM.
COMMENT: Administratively updated by State Engineer.

USES OF WATER

RIGHT*****

SUPPLEMENTAL GROUP NO. 614128. Water Rights Appurtenant to the following use(s):
91-168,340,545,761,770
1474,1728,1729,1730,1731
1732,1733,1734,1735,1736
1737,1738,1739,1740,1741
1742,1743,1744,1745,1746
2175,3033

##STOCKWATER:

PERIOD OF USE: 04/15 TO 10/31

Group Total: 350 Stock Units Diversion Limit: 9.8 acft.

****Sole Supply for Stockwatering for 91-3033 in this Group has NOT YET been evaluated*****

SUPPLEMENTAL GROUP NO. 614141. Water Rights Appurtenant to the following use(s):
91-168,340,545,761,770
1474,1728,1729,1730,1731
1732,1733,1734,1735,1736
1737,1738,1739,1740,1741
1742,1743,1744,1745,1746
1747,2175,3033

##STOCKWATER:

PERIOD OF USE: 04/15 TO 10/31

Group Total: 350 Stock Units Diversion Limit: 9.8 acft.

****Sole Supply for Stockwatering for 91-3033 in this Group has NOT YET been evaluated*****

SUPPLEMENTAL GROUP NO. 615849. Water Rights Appurtenant to the following use(s):
91-168,340,545,761,770
1474,1728,1729,1730,1731
1732,1733,1734,1735,1736

1737, 1738, 1739, 1740, 1741
1742, 1743, 1744, 1745, 1746
2175, 3033, 4970

.....
Group Total: 350 Stock Units Diversion Limit:
##STOCKWATER:
PERIOD OF USE: 04/15 TO 10/31
Sole supply for Stockwatering for 91-3033 in this Group has NOT YET been evaluated

PLACE OF USE for

STOCKWATERING*****

NORTH-WEST% NORTH-EAST% SOUTH-WEST% SOUTH-EAST%
NW NE SW SE NW NE SW SE NW NE SW SE
* X: : : * : : : * : : : * : : : *
Sec 21 T 13S R 13E SLBM *****

*****END OF DAT*****

